The
MIDNITE
SOFTWARE GAZETTE

The
PAPER

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The Independent U.S. magazine for users of Commodore brand computers.

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WELCOME

Welcome to issue 12 of the **Midnite Software Gazette**, and volume 5, issue 2 of **The PAPER**. Special thanks to all our new subscribers. We are printing 6000 copies immediately, just to keep up with requests for sample issues.

* * *

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* * *

The names abbreviated in this issue are: Jay Dellow (JPD), Jerry Key (JK), Debra Landre (DL), Jim Lewis (JL), Bill McDannell (BMD), Jim Oldfield (JO), Keith Peterson (KRP), Nita Ryboldt (NR), Jim (JS) and Ellen (ES) Strasma, Jim Tucker (JPT), and Larry Woolard (LW). Thanks to all whose names appear beside their columns, comments and reviews.

* * *

- The **Midnite/PAPER** is published bi-monthly by Midnite Software, Inc.
- Subscriptions cost $20 (US) via first class mail in the U.S., $25 (CDN) in Canada, $30 by surface mail overseas, and $40 via air mail overseas.
- Our 300+ page book, **The Whole PET Catalog**, is now available for $8.
- Pre-paid camera-ready advertisements cost $200 per page.
- Multiple orders to one address are welcome, at $20 for 10 copies.
- The **Midnite/PAPER** welcomes articles, hints, and reviews.

* * *

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THE MIDNITE XPRESS NOTES

MIDNITE MEANDERINGS

by Jim Strasma

MIDNITE MOVES (Again?!):

But not far this time. We are now the proud "owners" (just us and the bank) of 1238 Richland Av. in Lincoln. This is just 3 doors south of the home we rented 6 months, and should be even easier to find. We will move in by May 1, and hope all our readers begin using our new address (also printed on the inside front cover.) We plan on having open house one night during the **LC^4 seminar** in June. (Individual subscribers, see the enclosed brochure for info on **LC^4**.)

BUT DIDN'T CHANGE ITS NAME

Several user newsletters, aware of our VIC contest, are now listing us as the MidniteXpress, after the winning entry. But we decided during the contest to keep the name Midnite/PAPER, since we've become known that way.

MORE ON PHONE CALLS:

Fortunately, our phone number will remain the same. However, that number will now be listed with the phone company as Midnite Software, Inc., and there will be a new number for non-computer calls. We also have a telephone answering machine on the computer line. If you don't want to talk to it, hang up after 5 rings, as "Pandora" answers on the sixth. If you leave a message, say if I may call you back collect and suggest a good time of day to return your call. Ellen asks that you not call the family line about computer matters. If I am available, I'll answer the Midnite line. We would appreciate your limiting calls to ten (10) minutes, so others may get through. Yes, we ARE getting that many calls!

As long as we're talking about busy, let me also remind you that we only send immediate replies to letters that come with a stamped self-addressed reply envelope. Most others are answered via these pages. Also, if you want something back that you send us, please put your name on it, and say so.

BACK ISSUES?

We ran out again! If you still have last month's Midnite/PAPER, hang onto it--we're out of stock already, and still waiting for the first dealer anywhere to be "stuck" with more M/P's than they can sell. We've doubled our press run again this issue--to 6,000 copies. Our advertisers are getting the deal of a lifetime for this issue--no increase since the days when the PAPER had fewer than 600 subscribers. (No, it didn't last. See Advertising Notes.)

The only back issue we have now is the **Whole PET Catalog**, our 300+ page book of reorganized notes and reviews published late in 1982. We still have 350 available, but need to sell them before JO also moves this summer. Any VIC, PET or CBM owners without this book may buy it for a sale price of $8 US postpaid, while they last. Dealer and bulk prices have also been reduced. Any of our readers that don't have this book yet are missing a real treasure trove of information. Order now, before we're out of them, too!

Ralph Bressler is also offering his remaining back issues of The PAPER. For Vol. 3-4, please contact him (not us) at the address inside the front cover.

BYLINES:

In case you have forgotten, nearly everything in this magazine is someone's personal opinion. As in any other forum, opinions expressed here may be wrong. If so, we invite you to "set things straight" by sharing a more accurate opinion. Companies, if you feel a review nailed your product unfairly, put your views on paper and send them in. We try to publish letters from both sides of an issue.

Within the notes and reviews, the least controversial comments are those of "ED", who tries to keep her nose clean, and stick to factual matters. The bulk rate award goes to JS (me), for sheer volume of written output. Some of my opinions are controversial, but I try to be fair, and to separate my opinions from facts. On those occasions when ES (Ellen Strasma), JO (Jim Oldfield) and I all agree, we speak for Midnite. Officially, no one else speaks for the Midnite/PAPER, though we put a lot of trust in those whose names are initialized in these pages. The abbreviation means this person writes enough for us that spelling out their name would waste a lot of space. All other comments in the Midnite /PAPER are followed by the name of their author. We work hard to ensure fairness and accuracy, but we finally depend on the integrity of the person who signs each note or review. That is why we don't publish anonymous comments.

Readers should also note that we can't always verify the quality of companies advertising with us immediately, nor have we always tested every product mentioned in our ads (though we'd be glad to if asked). In general, those companies advertising with us are highly reputable, with products able to bear the heat of an honest review. Space does not permit us to publish most publicity releases. Some are useful for information, but most are simply filed until someone obtains and reviews the product.

TPUG's ANNUAL COPY SESSION, May 14-15, 1983:

The second annual TPUG "Copyfest" is coming up. It will feature both disk copying from their library, and talks by authors such as Jim Butterfield, Steve Punter, and Gord Campbell. Since TPUG has also invited me to give a talk, both JO and I are planning to come, and look forward to meeting old and new friends.

ADVERTISING NOTES

First the good news. Our advertising rates have just doubled, beginning with the next issue. How is that good news? Simple. It means we are reaching such a large audience that our old ad rates will no longer even cover the cost of printing and postage for the paper an ad uses. Although our rates will now be twice as high as last September, our circulation is up 600%. This still means more readers per dollar, despite the necessary increase.

A WORD FROM OUR COMPETITORS

This Midnite/PAPER includes advertisements for two competitors. In this, we are following normal practice in the magazine industry. Notice, however, that these ads have not been seen in Compute!. I had the pleasure of meeting Gordon Benson, Compute!'s Midwest advertising manager at the Commodore Midwest show in March. Unfortunately, he had to eat crow--he'd assured me earlier that we could advertise in Compute!, but 'taint so. They still refuse ads from competitors. Actually, it's quite an honor to have Goliath worried about our slingshot. The only thing that bothers me is a question of hypocrisy. Last time I looked, Compute! carried ads for a half dozen VIC 20 and Commodore 64 newsletters masquerading as user groups, not to mention cassette magazines and TPUG's ad. If we can't be honest about what we're offering, we won't advertise at all. Fortunately, Compute! is quite alone in their attitude on this.-JS

FRENCH SILK PERSONAL APOLOGY:

In my review of the French Silk ASSEMBLER, I mentioned that it may have been an improved version of the Personal Software ASSEMBLER. What lead me to this conclusion was that the screen and input formatting were almost identical. I must apologize for any confusion I may have caused. French Silk is a fine assembler for someone who is beginning in 6502 assembly language, and the coding DOESN'T bear any resemblance to the PS assembler, or any other assembler for that matter. In fact, French Silk uses very efficient routines that uses very little memory. I must complement Don French on a job well done!!-Mark Niggemann

SPECTRAVIDEO MISCLAIMS:

Most specifications of the new Spectravideo SV-318 computer look very good, but apparently not good enough to satisfy their advertising people. Comparison charts in advertisements usually emphasize the advertised product's good points, and omit comparisons on weaknesses. But Spectravideo has gone a step beyond...

For instance, did you know that Commodore doesn't have "built-in extended Microsoft BASIC"? Funny, back in 1977 Commodore's was listed as the first "8K Microsoft BASIC with extensions", and was also the first to have it "built in" ROM. That netted it a cover story in Popular Science. I also never knew the Commodore 64 lacks a cartridge slot, has no word processing available, lacks joystick capability, has only 3 voice sound, or that its disk drive isn't low profile, let alone that having CP/M only counts if it's got 80 columns.

What's saddest about this sort of misinformation is that it causes deep suspicion about other claims with more merit, and draws special attention to weaknesses not mentioned in the ad. Hint: look at the keys on the Spectravideo.-JS

ATUG NOTES

by Brent Anderson, ATUG Librarian

50+ Public Domain Diskettes as of 3/82:

ATUG specializes in annotated source code to use with Carl Moser's assemblers. Eastern House Software now offers MAE assembler for the Commodore 64, which can use our source files and which we will support. We also have ready-to-run utility, education, and game programs. We need your donations of programs and source code, especially for the VIC 20 and Commodore 64.

To get the latest annotated directory of ATUG diskettes, send me a #10 lettersized, triple-stamped SASE and request ATUG INFO. DO NOT use metered postage on SASE's [unless you write below it, "POSTAGE PREPAID BY ADDRESSEE."-ED]. To order, send $10 per diskette, specify desired diskettes and their format (4040, 8050, 1540/41), and include a ready-to-mail postcard for confirmation that your order has been received.

Some Available Diskettes:

FOR PET: HELP diskette (11/29/82); 4 game diskettes; 6 Softswap education diskettes (Computer-Using Educators, California).

FOR VIC: VIC Exchange diskette.

FOR 64: 64 Exchange diskette; 2 game diskettes NEWLY ADAPTED from PET.

On future ATUG diskettes:

FOR PET: software for BSR appliance controller, diskette disassembler (Rockwell), hexadecimal input from numeric keypad, ML "program compactor," ML add/subtract large numbers, ML compare of 2 ML programs on diskette, religious programs, later versions of extramon, micromon, and e-rom extended ML monitors.

FOR VIC: tinyaid (to edit BASIC) and more new material.

FOR 64: tinyaid, a true version of micromon, dynatext (slow but cheap and fancy word processor), superdisassembler (disassemble C64's ROM's with labels on zero-page addresses), and more.

CBM/PET PROGRAMMING NOTES

by Jerry Key

CORRECTION POKE TO PET/CBM HELP FOR VIC/64:

Thanks to John Schueler for pointing out the error. All references to POKE43 should be POKE41. Sorry for any inconvenience this caused our readers.-JK

The poke commands POKE 41,8: POKE 2048,0 allowed the CBM to "read" programs on a 1541 diskette in a 4040 drive. All was going well in paradise until I tried to load a program saved on the 4040 using the above method. Now the program acts just like its sister on the 1541 diskette. I had to repeat the pokes to list or run the program. Now how do I get around this problem? -Jan Mathis

[Jerry will answer next issue...-ED]

FINDING THE END OF A PROGRAM:

In the last issue, Tom Lamb asked how to find the location of a machine language part (ML) of a program. For those without a monitor utility, try this:

1) When searching for the ML part, first do a cold reset (turn off then on) to erase any program in current memory. Typing NEW does not have the same effect. (NOTE to VIC/64 owners: A cold reset does not erase all memory.)

2) Load the program.

3) SYS4 to the monitor.

4) At the '.' prompt, type M 002A 002A and press [RETURN]. The first two hex numbers after the 002A address will give you the address one byte PAST the end of the program. This is the easy part.

5) Look at the 3 bytes just before the address displayed. Remember, the address you want is in reverse order; if you see 7A 2A, the address is 2A7A. To look at them, you would enter: M 2A77 2A7A. If the 3 bytes shown is 00 00 00, you have found the end of a BASIC program that does not have ML attached to the end of it. If the 3 bytes are not 00's and the next 5 sets are AA's, then you know the program has ML attached.

6) Without a monitor utility, the fun begins. You must search the memory below the address you just looked at for the FIRST occurence of the 3 sets of 00's. Remember, BASIC starts at 0401 and you know where the program ends.

7) When you find the 3 sets of 00's, you only know you've found the end of BASIC. Many programs may have lost space between the end of BASIC and the actual start of ML. The start of ML will be apparent in a cleanly written program.

8) Now you must find the entry point for calls to the routines, by scanning the BASIC program for SYS calls.

9) To find the end of BASIC, if you have either the TOOLKIT or BASIC AID program, load the program, SYS4 and check locations 002A 002B, exit the monitor, type FIND @AA@, then re-enter the monitor and check 002A 002B again. If machine language was attached, you should find these locations changed and 00s at the 3 locations prior to the last address found. This will give you the end of BASIC and the end of the machine language.

SYSRES BUG:

Type in the following while using SYSRES:

```
10 _data 1,2,3,  :rem 2 spaces after line number
20 for i = 1 to 3
30 : read x
40 next
50 end
```

When you run the program, you will get an out of data error. The problem comes from BASIC not liking the extra space character in front of the data statement. If you have more than one data statement and one of them has the extra space, the basic interpreter will actually skip it and cause the program to misread the data statements.-Image Software

COMMODORE 64 NOTES

by Ken Penny

DAY 4: Digital Entomology 201 or Hacker Heaven

> Max Maxwell leans back in his chair, fairly oozing satisfaction with his freshly installed reset button. He yelps as the family cat jumps to his shoulders and pulls him over in a heap on the floor. The still-hot soldering iron flies unnoticed into a fresh box of paper.....

The Commodore 64 is a nice little machine, but has had its share of midstream improvements. Here are some of the more important or interesting ones so you can figure out how current YOUR 64 is.

ALL THE LATEST CHANGES:

One of the most important additions to the 64 is a copper plate soldered to the bottom of the board. This FCC inspired modification really does cut down on RF noise. If you have a noise problem in your TV, you need it. It can be seen through the bottom cooling slots; if you see a circuit board instead, you don't have the new plate.

Another addition is a ferrite coil (sort of an iron ring) on the keyboard harness to cut down noise inside the 64. Some newer units have such a ring on the power indicator lamp as well. These are not really worth putting on your 64 if you don't have them. In fact, they tend to jam when putting the case together, breaking the rear hold down tabs.

Some early 64s had mounting screw problems. The heads were too small for the hole in the board, and would pull through, tearing up some traces in the process. Later ones have screws with larger heads, and some may have little washers. Rumor has it that the screws were metric, but the board was designed for English sized screws. Further rumor says the root of the problem was stumbled upon by Commodore's latest president.....

Early boards had loose RF box covers. The heat sink tab on the VIC chip was too strong and the lid fell off. Check and tighten yours if necessary.

There has been a minor kernal ROM revision. It changed initialization of screen color RAM, and blew several software programs out of the water. The rumor mill suggests that even new 64s are being produced with the old -01 ROM. The fact is, the -02 kernal ROM's major change was to allow the 64 to be easily configured for US or European video standards (as opposed to a completely different ROM as on the 8032). I wouldn't bother to get -02 ROMs unless I were planning a trip to Europe.

THINGS YOU CAN DO:

A failure waiting for a time to happen exists in a regulator near the joystick port that could overheat. If you want to beat the odds, put on a little heat sink or bolt the regulator to the RF can. It's worth the insurance.

Some early 64s had a bad sparkle on the screen. One fix is a pair of 330 pico-farad caps, one between pins 20 and 30 of the 6567 VIC chip, and one from pin 14 of the 6510 to ground. You can also peak up the monitor level video by judicious application of a small resistor, but since this can be dangerous, let your dealer do it.

One thing you can do for your video is get the latest revision of the VIC chip. Most are rev 0, the latest ones are rev 5, and MOS technology is up to rev 8 (does it look good!), but it will be a while before we can get the latest.

DRIVE-ING US CRAZY!:

The 1541 disk drive also has a few interesting features. For example, if your drive has been working fine for weeks, then suddenly comes to a grinding (literally!) halt, the flywheel has dropped off the capstan shaft. A touch of superglue will fix it. (Be careful!) New drives don't have the problem.

Certain software protection schemes also can cause a delayed or random problem. If it always loaded before, but now suddenly won't, try demagnetizing the head. I've seen or heard of a dozen or more drives with this problem.

Then there's the 'watching the bus while booting up' problem. Whenever the 1541 comes up, it fails to ignore the serial bus. Any activity on the bus can lock it up. It also sends out a little garbage of its own. The net result is that if you have two drives on the same bus, they lock each other up as they come on, or if they are reset together. They can be freed up with the run/stop - restore sequence. Sending a 'uj' command to the disk will cause the same type of reset. If you are in the habit of sending this reset followed by an initialize command ('i0'), the drive will lock up every time. Put a delay loop between the two, such as 'forn=0to800:next'. Problem solved.

Odds are you'll never see these problems, but now you know what to look for.

> After the firemen leave, Max gingerly powers up his system. To his surprise, the long forgotten 2023 printer springs to life in self test mode! Strange, he thought, he hadn't even looked at that printer since the day he spent 4 hours looking for the bad solder joint that kept it from working.....

And From Our Readers:

COMMODORE 64 SOFTWARE UPDATE:

There has been an update to the Kernal on the Commodore 64. Previously, when a clear screen was executed, color RAM was reset to a value of 1 (white). With the new Kernal update, when a clear screen is executed, color RAM is reset to the value in background register 0. This change will not affect any BASIC print statements but it will have an effect if your program is printing characters on the screen by poking the characters directly into screen RAM without updating the corresponding color nybbles in color RAM. The new kernals can be identified by part number 901227-02 in slot U4...-Stephen Murri of Commodore

SIMON BASIC FOR 64:

Another tidbit that I got from Robert Winter of Commodore Canada is that there is a super piece of software coming out for the 64 called SIMON BASIC and was developed in Britain. It uses 8K of memory and links into CBM BASIC. It supposedly adds well over 150 kinds of neat new commands. Includes programmer's aid commands like RENUMBER, and AUTO, and new ones for doing high-res graphics, sprites, and music! So far no word on whether it will be marketed as a diskette or a cartridge.-Gerald Neufeld

USING A 64 ON A ZENITH OR SYLVANIA:

According to a Chicago BBS, if you are using a 64 on a Zenith or Sylvania TV and are experiencing vertical hold problems or extreme 'smearing' on the screen (not the color smear problem) try POKE 36864,133. If this clears up the problem, Zenith and Sylvania have been advised of a component change to cure the problem. Take it to your dealer to see about a fix.-OCCUG Newsletter

COMMODORE NOTES

by Jim Strasma

According to Adam Osborne, speaking at the recent CP/M show in San Francisco, "If you're PC-compatible, you stand a chance; if you're not, you're dead." (Reported in PC Magazine)

And therein lies a dilemma. **Is the new Commodore "B" compatible, not just with the hot-selling IBM Personal Computer, but also with the rest of Commodore's own line?** Described in publicity releases as "BASIC 4 .0", the "B" is closer to an unreleased BASIC 5. The new additions are quite useful--more so, in my opinion, than those added to BASIC 4--but it changes (for the third time!) nearly every key location in both high and low memory from prior models. Only the kernal ROM's jump table remains the same. Fortunately, the new low-memory map is almost identical to those of the VIC and 64. The differences mean there's no easy way to transport programs between a "B" and other CBM models. Programs on the "B" are saved starting at address $0002; when loaded into an 8032, they instantly crash. Going the other way is no problem.

Unlike most new computers announced this year, the "B" lacks high-resolution, color graphics, and sprites. It still lacks BASIC AID's commands. Fortunately, it does have a SID sound chip and built-in speaker. The "P" model, which had color and graphics, exists, but may not appear. Perhaps as a result of all the changes, only one company has announced software for the new model; Precision Software's SUPERSCRIPT is on sale for the "B" now in Britain.

I wish Commodore had delayed the "B", till it could be delivered with the MS-DOS and CP/M now being finalized, or better yet, with the new Z8000 true 16-bit processor. But Commodore is now shipping 256K RAM "B"'s in a low-profile "P" case, minus disk drives and monitor. Each dealer got two. At the announced price of $895, it will get lots of attention.

One other new product is also shipping--a 4023 printer. It has an 8 wire matrix, film cartridge ribbon, prints at 80 cps, and lists for $450. Sounds good. Joel Leathers reports its print quality is excellent, especially in a doubly-dense 8 by 16 dot character mode. No word yet on ribbon cost.

COMMODORE STUNS PRESS AT WCES:

--As reported by Infoworld, Sheldon Leemon and other readers

A dual-processor portable computer at a low price, one million VIC 20s sold, the possible takeover of Zilog and scads of new products were among the topics at a Commodore-hosted press conference at the Winter Consumer Electronics Show. Nearly 100 reporters packed a small conference room to hear the company announce they were now number one in both home and personal computer sales.

The **Commodore 64** is reportedly selling at a rate of 30,000 a month. One smart aleck...asked, "Will UltiMax ever be shipped in our lifetime?" A company spokesman replied, "That depends on how long you expect to live." (The UltiMax is being sold successfully in Japan.)

A new 12 pound **SX-100 portable** consists of a 5-inch built-in color or green and black screen, keyboard, 6510 and Z80 processors, two 5-1/4-inch half-height floppies and 64K RAM, running both Commodore 64 and CP/M software. $1,000-1,500, and coming soon.

Commodore has hired the people responsible for "Speak and Spell", and showed a $100 **speech synthesizer** with a remarkably natural female voice. It plugs in as a 64 cartridge, heard through the TV.

The company also announced: 1) the **HHC-4,** a hand-held computer with a 24 character LCD display, that can be hooked to a regular TV, (said to be slow; may not appear); 2) a plug-in piano-type **keyboard unit for the 64,** with 3 extra SID chips; (a musician demonstrated very impressive music and recorded it on diskette for later playback); 3) an electronic **drum attachment;** 4) an 8x11" **graphics tablet** for VIC/64 with 500 by 500 resolution; 5) a $200 4-1/2" **plotter;** and 6) a $250 **monitor** said to be close to RBG quality.

COMPETITORS NOTES

APPLE:

January 19, Apple unveiled **Lisa**, the result of a $50 million investment over 3 years. It has a slow 8MHz version of the 68000 microprocessor, one megabyte of memory, a 720x364 pixel black-and-white display, 1.7 megabytes of floppy-disk storage, 5 megabytes of hard-disk storage, a one-button mouse cursor controller and an integrated software system that passes numbers, text and graphics between programs--all for $10,000. This includes programs for spreadsheet analysis, word processing, business graphics, graphics design, personal filing and project management, totalling 2 Megabytes. Newcomers can use it "within 30 minutes", says Apple, which reports it runs BASIC, Pascal, COBOL, XENIX and CP/M.-Infoworld

Someone's already announced a look-alike called **Mona**...-Ron Jeffries

The **Apple][e** added 16K of memory and lower case, and cut the cost of going to 80 columns, with a second 64K of memory also available, but they still want $1,400 for it--too much to keep the $400 Commodore 64 from stealing customers.-John K. Jones (OCCUG Newsletter)

ATARI:

Atari is closing a 1,200 employee West Coast factory this Spring, reportedly to move production to Asia. The stated reason is to cut costs slightly; another reason may be to avoid unions.-JS

IBM:

IBM just released their answer to all the little companies that got rich on PC add-ons last year--a new **PC XT**. It includes a 5 Meg hard disk, a 320K floppy disk, 3 more expansion slots, and sells for just over $5,000. It also includes new ROMs and DOS that fix the famous PC bugs. The price of the "old" PC dropped 15% Now you can get a PC for about the same price as a lookalike. Bearing in mind IBM's well-known disdain for "foreign" add-ons, it's hardly worth buying PC gear from anyone else these days--just as IBM intended.

Worst feature on the XT is the lack of a back up for the hard disk. Runner up is the keyboard. Once highly-touted, the PC keyboard now has a bad reputation, largely due to poor placement of some of its multitude of keys.-JS

RADIO SHACK:

Tandy's big news is the **TRS-100**, a textbook-sized, battery-powered computer with a full normal keyboard and a 9 line by 40 column LCD display. It also includes a built-in clock/calendar, built-in auto-dial modem, and several programs in ROM, including a word processor, an appointment scheduler, a terminal package and BASIC. For $800 it comes with 3.5K of memory, or 24K for $1,000. 8K add-ons, up to 32K are available. All it needs is a built-in micro-cassette, a TV interface and a disk interface. Very impressive!

Radio Shack is also selling a new **Model 12** upgrade of the Model 2. Ron Jeffries reports it **runs CP/M-Plus**, but not well. Tandy has also released **XENIX** for the **Model 16.** It is "real" Version 7 UNIX, minus several-hundred programs. Jeffries feels 128K is not enough memory for XENIX.-JS

TEXAS INSTRUMENTS

TI has halted sales of the **99/4A** for 3 months, due to a design defect. TI owners should have their units checked for safety.-JS

TIMEX SINCLAIR:

The Timex now lists for $80, and the "Spectrum" color version is coming. Still no keyboard worth mentioning, but at that price many don't care.-ES

COPYRIGHT NOTES

by Ralph Bressler

SUPERSCRIPT AND PROTECTION:

SUPERSCRIPT uses DOS protection while WORDPRO uses ROM chip protection. Of course, the user prefers no protection, but we then run the risk of having good inexpensive programs like FLEXFILE pulled off the market when some low-life decides to pirate it. Many programmers prefer the ROM method of protection, because they can load the program, look at it, customize it for their own use, and make backup copies, but still use it with the ROM chip protection. Unfortunately, our computers then become clogged with program chips! For instance, machines in schools are used by programmers, business students, and remedial math students. If all the programs used by these people were chip protected, what kind of mess would we have? What are the economic implications?

To install WORDPRO and SPELLMASTER in one 8032 requires 2 ROM chips which hopefully go at different locations; 12 machines need 24 chips, for a rock bottom total price of $3000. [You can't just buy extra ROM chips to go with the original two diskettes and manual for each program.] A combination of SUPERSCRIPT and SUPERSPELL would cost only $375--for two diskettes of each program and one manual (the $2600 savings will buy a lot of extra manuals!). Replacement diskettes cost only $15 each. In this case, I'll opt for the DOS protection. Precision Software will soon be selling one diskette containing SUPERSCRIPT, SUPERSPELL and SUPERSPELL INSTALL (probably double sided with both 4040 and 8050 formats), that work on any 16K+ PET with BASIC 2 or 4. I'm told an exchange arrangement will be made with dealers and previous customers. If this sounds like an ad, it is; I sell the products! However, people that know me realize I would not recommend a product that I felt was second-rate.-Ralph Bressler

DEALER NOTES

COMMODORE MIDWEST DEALER SHOW:

The big event for dealers in March was the Third Annual Commodore Midwest dealer show. About 40 vendors showed up, making a very fine show. Both Jim Oldfield and I were there, and had a fine time, as usual. Thanks to John Gould, Rich Kurt, Tom Loane and all the other CBM people responsible.

One of the fun parts of such a show is meeting people you've known only by phone. I chatted with Bob Skyles and his lovely wife, Nancy Iscaro and Carlos of Jini Micro Systems, Brian Padol of C.F.I., and Peter Smith of R.T.C. (Oldfield thoroughly enjoyed meeting Peter, calling him truly unforgettable.) Joe Spatafora of Spellmaster Systems was there, too, as were Chuck and Ann Palmer-McCarty of TOTL Software. We even got to meet Alicia Linden of the new Commander magazine, and finally read her note to me in their latest issue.

QUICK BROWN FOX:

We also had quick confirmation that the Midnite is widely read when the people from QUICK BROWN FOX came looking for us to talk about our recent review of their word processor. It seems a fair number of dealers pointed it out to them at the show--with a certain amount of glee, no doubt. Quick Brown Fox feels I erred in letting my opinion of their current media blitz dominate the product review--and didn't like the rest of it either. As you may remember [M/P #11], it was not an overwhelmingly favorable review. However, the Fox people brought it on themselves. I doubt if anyone can honestly tell me they'd rather write a lengthy document on QUICK BROWN FOX than on WORDSTAR after using both. It isn't a matter of being snobs; both TOTL TEXT and PAPER MATE are inexpensive word processors that received good reviews in Midnite. Rather, it's a matter of pretending to be more than you are. If QUICK BROWN FOX would like to be rated on a less exalted scale, Jayne Schiek (of CIPUG) will be pleased to review the 64 version.-JS

AMERICAN VICTORY COMPUTER NETWORK, $20 to join; from Box 111, Girard IL 62640

The first clue that this outfit is a bit unusual is that their logo is a Space Shuttle flying UP, under power, without a booster or fuel tank! In handing the brochure to me, JO referred to it as a pyramid letter, but later called it an Amway-like dealership. After reading it, I wonder if its originator knows as much about computers as about the Space Shuttle. The brochure inspires little confidence in the company (printed on mimeograph paper, off a cheap dotmatrix printer and a typewriter that doesn't justify text). Its impressive stated goals ought to raise an eyebrow or two in little Girard: to "establish a completely computerized branch office and warehouses in every state and every continent" by January, 1985. The unknown vendor even plans to unmask at a New Year's Eve party at the Waikiki Hilton! If someone would like to review an Amway-like approach to selling VICs and 64's, you now have the address and our sympathy. If $20 seems too cheap, you may add $3 for a catalog and $6 for a promised 6 monthly issues of "American Victories" newsletter. Let us know how it goes!-JS

PROGRESS COMPUTERS and FILE CABINET Update:

As reported in Issue #10, Progress Computers has the dubious honor of being our only continuing bad debt. Though we have written owner Chet Lewis numerous times, and sent his check through repeatedly, we've received no reply and the check always bounces. We are only mentioning it in these pages, because Progress is still advertising regularly in the TorPET, and Lewis' ad in the Whole PET Catalog is still being seen by new buyers of that book.-JS

STAR MODEM GUARANTEE, from Prentice.

Recently I had to send my STAR modem back to Prentice to be fixed. Sure enough, it came back to me when they said it would. The STAR's 2 year warranty sure does beat the 90 day warranty of Commodore's VICmodem!-Mark Niggemann

STARFIGHTER JOYSTICK GUARANTEE, from Suncom, Inc.

I got to try out the guarantee on the joystick I reviewed last time. I received a new joystick with no questions asked 8 days after I mailed the broken one in. This is great service!-LW

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COMPUTER

STOCKING DEALERS of the Midnite/PAPER

ARIZONA:
Computer Depot, Prescott AZ
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CALIFORNIA:
Calco Computers, Oceanside CA
Data Equipment Supply, Downey CA
Opamp Tech Books, Los Angeles CA
PC Computers, El Cerrito CA
Micro Pacific, Fresno CA
The Radio Place, Sacramento CA
J. Snell & Co., San Francisco CA

COLORADO:
Calco Computers, Colorado Springs CO
Micro-World Electronix, Lakewood CO

FLORIDA:
Random Access Comp., Ft. Walton Beach FL

IDAHO:
Electronic Specialties, Boise ID

IOWA:
Cosmos Computers, Bettendorf IA
Gronert Computers Ltd., Des Moines IA

ILLINOIS:
Computer Tutor, Springfield IL
Computers & Video, Lincoln IL
Data Plus, Quincy IL
Micro-PACE Computers, Champaign IL
Warren Radio, Peoria IL

INDIANA:
Alans Jewelry & Loan Co., Anderson IN
Custom Software, Terre Haute IN

KANSAS:
Computerark, Lawrence KS

MARYLAND:
Professional Micro Serv., Baltimore MD

MICHIGAN:
Computer Connection, Adrian MI
Roseville Computer, Roseville MI
Ye Olde Teachers' Shoppe, Ypsilanti MI

MISSOURI:
Commonwealth Computers, Kansas City MO
Computer Country, Florissant MO

NEBRASKA:
Central Office Equipment Co,Kearney NB

NEW HAMPSHIRE:
Echo Consulting Services, Conway NH

NEW JERSEY:
Micro Computer Services, Warren NJ
Wayne Software, Wayne NJ

NEVADA:
Audio Visual Sales, Vinyard NV

NEW YORK:
Computer Strategies, Spring Valley NY
Meizner Business Machines, Pelham NY
Software Emporium, Rosyln Heights NY

OHIO:
Big Bits, North Lima OH
Computer Corner, Lindhorst OH
Office Mart, Lancaster OH
Quality Computer Application,Toledo OH

PENNSYLVANIA:
AB Computers, Colmar PA
One Stop Computer Shoope, Lemoyne PA

TENNESSEE:
Metro Computer Center, Chattanooga TN

TEXAS:
Van Guard Tech, Inc., Victoria TX

VIRGINIA:
Virginia Micro Systems, Woodbridge VA

WYOMING:
Computer Concepts, Cheyenne WY

CANADA:
Micro-Mart, Winnepeg MAN R3G 0P1 CANADA
Richvale Telecommunications, Richmond Hill ONT L4C 3N8 CANADA
Vulcan Computer Systems, Langley B.C. V3A 4G4 CANADA

DISK NOTES

8250 Disk Drives:

QUESTION: In the last issue on page 24 you indicate that the "new" 8250 will have faster access speed to sequential files. For some reason, I seem to remember improvement seems to be by a factor of 4...?

I own a SuperPET and a 32K 2001 PET upgrade BASIC 4 and an 8050 drive. Over the past 2 years I have developed some medical software. The only complaint I have is that lookup time of any particular sequential file takes 12 seconds in my accounts receivable program. (Each sequential file contains 4 patient records.) Would the "new" (how new?) 8250 access time be cut down to 3-4 seconds? [What about using relative records?] The problem is that for each patient record I would need 4 blocks to cover the worst case, and this would waste lots of space. From what I know from FLEXFILE, one record can only be 1 block long.-Alfred Staub, M.D.,Ph.D., 1731 Gilpin Street, Denver CO 80218

ANSWER: No, the 8250 isn't 4 times faster than an 8050; it could even be slower than an 8050 with Tandon drives. For a 4x speedup you'd need a hard disk. Unfortunately, the hard disk disallows drive 1 commands, and is thus clumsy to use with the SuperPET. Relative records would be far faster, and I know you've been reading my series on them in Micro magazine. If you can spare the disk space, just dedicate 4 physical record numbers to each logical patient record number, and step through your file 4 records at a time. If disk space is tight, an array in memory could remember which physical record number begins each logical record. This would allow logical records to vary in length.-JS

1540 and 1541 Disk Drives:

MULTIPLE DISK DRIVES WITH THE COMMODORE 64

The CBM Midwest Service bulletin from Tom Loane reports a minor problem when using more than one 1541 single disk drive with the 64. After altering the device number by cutting the jumper(s) located next to UAB1 the 6522 VIA, the second disk drive can't be accessed after power up, because the Commodore 64 doesn't know it's there. He gives two solutions:

1) Apply power to the 1515/1525 first, then the 1541 device #8, followed by the 64. Do a RESET, then apply power to the second disk drive.

2) Attach all the equipment together according to the manual. In this order, apply power to the disk drive device #8, then device #9, then the 1515/1525 printer, and then the 64. The LEDs should blink on both drives while it resets the bus and the head assembly on the printer travels across the mechanism. To FIX it, press the RUN/STOP key and then the RESTORE key to turn on one drive motor. If it stops with a blinking error light (the usual case), type in: `open 1, device number, 15,"uj"`, and press the RETURN key. This will RESET the operating system in the stopped disk drive.-ES paraphrasing Tom Loane

GET SELECTIVE LISTING:

To get a selective listing from both disk drives at once (with the wedge or a PRINT # command), use a comma (,) instead of a colon (:) after the dollar ($) sign; that is, use `>$,whatever` instead of `>$0:whatever` and `>$1:whatever`.-OCCUG Newsletter

POWER OFF:

If you own a VIC or 64 with a single disk drive, remove the diskette from the drive before turning off the computer, and turn off the disk drive last. So far, I've managed to lose half a dozen diskettes being careless.-Mark Niggemann

EDUCATION NOTES

AFTER SCHOOL CLUB RULES:

Karen Estes writes, "I am sponsor of a Strategy Club, an organization of games-oriented [high school] students. They play chess, MASTERMIND and DUNGEONS AND DRAGONS primarily [plus BAGLES and LINEUP]." She uses the following rules:

1. Only two persons at each computer!
2. No horseplay - the equipment is too expensive to play around with.
3. Do not talk loud! Do not bang buttons!!
4. When activity period ends, turn off the computers. Make sure the cassette player is closed.
5. Push chairs under the table, put desks in order.
6. Not following the above rules will result in not being able to use the computers and sitting quietly in alphabetical order.
7. If I am absent, you will sit in alphabetical order and do worksheets.

AMBUSH TOURNAMENT

1. Each match will consist of the best two out of three games.
2. When you have determined the winner of your match tell [the advisor].
3. The tournament is a double elimination tournament. You have to lose twice before you are eliminated.
4. Check at the beginning of each activity period to see if you are scheduled to play.
5. If you are not playing, you may watch but not offer suggestions to players.
6. Good Luck!

PUBLIC DOMAIN EDUCATION DISKETTE LIBRARY:

For educational software, ask for a list of the 656 Commodore public domain education diskettes from your local dealer or user group.-ES

COMPUTER TEXTBOOKS:

See Book Reviews for JS' reviews of college texts received last semester..

SUPERPETS:

Computing Services at Brandon University, the mainframe folks, recently installed 24 SuperPETs in the our Department of Mathematics and Computer Science to teach PASCAL and APL to our first and second year computer science majors. The SuperPETs are interfaced into a VAX 11-70 minicomputer through the RS-232 ports. The communication protocols in the SuperPETs have been modified to ensure system integrity and security. Feedback from students and professors says that everyone just loves the system: a lot fewer lineups than when they used terminals and card punches, better editing capabilities, lower communications costs, and the students learn to program faster!-Gerald Neufeld

MIDNITE GAMING NOTES

by Jim Oldfield

Remember when I said my VIC 20 was all I wanted my PET to be? I was wrong! The Commodore 64 has it beat head over heels in EVERY category of game playing, including sound and graphic animations. Add 40 characters by 25 lines for screen display, and you have a winning combo. I haven't seen many earlier games from software houses that compare to the latest batch of cartridges being released. MAZE MAN and CYCLES from T.C.I., PAKACUDA and LOGGER from Comm*Data, MOTOR MANIA from UMI, and ZWARK from Access Software are among the few cassette versions that I still like. If programmers do their homework, we should see the Commodore 64 become THE game machine for a while.-JO

HAM NOTES

by Clark L. Stewart, W8TN

This column is intended to help PET users who are also hams to get in touch with each other to share information. While in his own 'shack' at his own computer, each of us can meet daily with others, even though separated by hundreds of miles (and with no monthly payments to Ma Bell.)

Two PET NET's meet weekly on-the-air. One meets on Saturdays at 9:00 a.m. Eastern time on 7.156 MHz. and the other begins at 12 Noon Central time Sundays on 14.240 MHz. Recently, a message in the K4CZ MSO on 40 Meters said that WB8MLA wanted to start a VIC 20 Net on 14.322 MHz. at 1:00 p.m. EST on Sundays. I tried to find it, but my 20 Meter dipole was apparently too short. If any VIC owners are interested, please contact WB8MLA and keep me informed.

KA8CPO has a logbook program for VIC 20 users that will log up to 100 QSO's at a time (using 132 bytes per QSO), but with no dupe checking. Tim's program will save to tape and alphabetize calls to put your QSLs in proper order before sending them to the buro. If you would like a copy, send a tape and postage-paid, return-addressed mailer to Tim at his callbook address. Include a public domain VIC 20 program on the tape (preferably one not on the list of Public Domain programs from West Milton, Ohio) in exchange for the logbook program.

It was reported on the 40 Meter PET NET recently that the VIC-20 and the Flesher TU-170 terminal unit both have TTL compatible levels. It should thus be a snap to interface the VIC to the TU-170. I'll have more on this later.

With the launch of AMSAT's Phase III-B satellite next June, a new channel of communication for computer users is about to appear. Certain segments of the satellite's passband will be set aside as special service channels (SSC's) carrying ARRL bulletins and RTTY traffic. One SSC will even be devoted to AMICON (AMSAT International Computer Network) digital packet transmissions. AMSAT is even now developing both the hardware and software to use a Sinclair ZX-81 computer to calculate the orbital data for tracking the Phase III-B satellite and for interfacing to antenna rotors to position automatic antennas. Also being discussed is the possible 1984 launch of a satellite (PACSAT) which may be an all digital store and forward transponder (that is, a flying mailbox).

If you have anything of interest to other ham PET users, please send it to me, and enclose an SASE if you wish a reply.-73, de W8TN

And this note from Oregon Commodore Computer Users Group Newsletter:

AMATEUR RADIO GROUP: The Amateur Radio group is starting a 2 meter computer oriented RTTY with 220 and 440 FM capability (RTTY and CW 60-1200 Baud). A repeater is planned (frequency undecided). They plan to broadcast software for up and down loading from the areas between Seattle to Eugene. Contact Jim Meyers WB7QJF (Molalla 829-5083 (H) or Portland 249-0415 (W)) or Roger KC7BC (777-0237) for more details. Jim is the head of the Amateur Radio special interest group.

MODEM NOTES

by Tim Tremmel, SYSOP
Racine BBS (414/554-9520)

CORRECTION TIME:

In the last 2 issues of Midnite/PAPER, there were a couple of "BOO BOO's." The first appeared in Issue #10. [ED] incorrectly added that the BBS was also available for the TNW-488 and the SMARTMODEM. The BBS software, as sold, will ONLY work with the CBM8010 or Livermore Star IEEE modem. [KRP has adapted Punter's package to the TNW. It is in daily use by 2 BB's, and I have tested it here. We are working to make it available. The Smartmodem adaptation was abandoned.-JS] Commodore Canada is no longer handling the BBS package. Steve

Punter is distributing it himself for $200 CDN; to order, call him at 416/624-5431. This is his BBS number, but during business hours, he has been known to answer himself. To get an update, send Steve the original program diskette, a blank diskette and a check for $10 to cover copying and postage. (Make a backup first.)

The second boo-boo, in Issue #11, was my fault. When downloading a file, you will see a dash (-) for good blocks and a colon (:) for bad blocks. I had it backwards. The BBS sends a bad block 5 times before giving up.

SOME PROBLEM COMMANDS:

Some callers are having troubles with the commands that require a number for a starting point. These are listed in the HELP list as R[#], S[#], etc. When you enter these commands, don't use the [#] sign. If you wanted to RECALL a msg starting at MSG #5, use the command R5; the same applies to S for summary (S5). There also seems to be some confusion on MSG RECALL. A msg can be recalled by two numbers: its Message number and a Reference number. This is because the Message number gets renumbered when msgs are deleted, but the Reference number always stays the same (negative number) for that msg. To recall MSG #5 - REF #25, you would use the MSG RECALL command (R), then type 5 for Msg #5 or -25 for Ref #25. You can use the Ref number to refer to a particular msg in another msg; for instance, you could tell someone to read Msg Ref #25. Another use for the Ref number is the NEW & READ command. When you sign off, the Reference number of the last msg is saved in your user log file, to be used next time you call for the READ & NEW command. READ will show all messages addressed to you since you were last on; NEW will show the list of messages to everyone since you were last on. READ & NEW will not work for a first time caller since there is no Reference number in their log file yet; it just sends you back to the command prompt. Messages marked private are not shown unless they are either TO or FROM you, and do not show up in the Summary or Overview.

A PLEA:

And now a plea...Don't be too hard on the SYSOP. He has spent a lot of money to get his BBS up and running, not to mention the wear and tear on equipment (notably Drive 0). Most public access systems are free. The SYSOP puts a lot of time and effort into the BBS, writing bulletins and doing housekeeping. I have talked with other SYSOPs and the story is much the same. Some users expect a lot for free. Not everyone is this way, but the poor over-worked, unpaid SYSOP gets to see it all, and can get pretty discouraged. So if a SYSOP sounds short-tempered sometimes, try to understand why....

That's it for now...keep the phone lines hot and have fun...

USER'S TERMINAL PROGRAM FOR THE 64:

A new 64 version of Steve Punter's terminal program is now available. The current version does upload and download just fine, with 2 exceptions. First, the VIC MODEM isn't as sensitive as some modems, and may need a call back to get a good enough connection to work. Second, no one knows why the BBS program used by Commodore Chicago's public access BBS won't upload or download to the 64. Another way to upload and download only available to the SYSOP uses the same exact routines, and works fine from a 64. Mystery time...-JS paraphrasing KRP.

CORRECTION TO BASIC TERMINAL PROGRAM:

For you 64/modem users: a correction to the BASIC terminal program in your VICmodem manual. You must delete line 400 to use it with the 64. Also change line 200 to read FOR J=1 to 64:, etc., ...so that you can send any control character by holding down the CNTRL key while you press the appropriate alphabet key.-John K. Jones (OCCUG Newsletter)

PRINTER NOTES

NEW 1525E FOR 1515 AND $50:
A Compuserve user reports that the Commodore Support Group has an exchange policy on the 1515 - they will give you a new 1525E for your 1515 and $50. Contact them at Commodore in West Chester, PA. I don't have an exact address or a phone number.-John K. Jones (OCCUG Newsletter)

GEMINI 10 PRINTER:
The GEMINI 10 printer will work with the VIC and 64. Price with interface is about $525. For a spec. sheet and sample printout call Gemini Electronics at 212/442-3085.-John K. Jones (OCCUG Newsletter

SMITH CORONA TP-1 LETTER QUALITY PRINTER NEWS:
You should probably avoid using the Lift-Rite ribbons. There was too much drop out on the type of letterhead paper we are using. Soon to be available is a tractor feed unit that can be attached to the printer to handle pin-feed paper, forms and labels. Availability is set for February 1983 for less than $150. You can feed individual sheets without removing the tractor, but you can quickly remove the tractor unit whenever you want.-Gila Newsletter

READER QUESTIONS AND COMMENTS

Questions

PET TO VIC QUESTION:
I work at a public school which has PET computers in various models ranging from the 2001's to 4032's. I have a VIC 20 at home. Part of my work entails making changes in data lines for different grade levels on our school software. Can I copy from my VIC 20 to the PET? The program appears to load into the PET and save on the 8050 disk drive I use at school, but will not run.-Gloria Holm

ANSWER: See CBM/PET Programming Notes for help with your question. Also, Dan Gauwitz uses the following program by Jim Butterfield (used with permission).

```
10 rem vic loader
20 for j=0 to 2:poke4096+j,0:poke4608+j,0:next j
30 print"Load your VIC program from tape now and try to list it."
40 print"If it doesn't list then"
50 print"Try poke 41,16 for a VIC that had 3K Expansion."
60 print"If that didn't work then"
70 print"try poke 41,18 for a VIC that had 8K Expansion or more."
```

PASCAL QUESTION:
Do you know if and when Commodore plans on coming out with a UCSD Pascal for the Commodore 64 and possibly what it might be priced at? Will I have to get C/PM to use it?-Mark Niggemann

SUBSORT QUESTION for JS: Do you have any plans to market a version of SUBSORT that is compatible with PETSPEED?-Lyle Pollett

ANSWER: No, using a compiler lessens the need for a machine-language sort, and PETSPEED in particular uses a variable storage format that would require a major rewrite of the sort. You should be able to use DTL BASIC with SUBSORT, if it doesn't use locations after $0380 in the second cassette buffer.-JS

WORDPRO QUESTION: We recently modified a 2001 to 80 columns via EXECOM 80. We now find WORD PRO 3 will not run--one of the reasons we wanted 80 columns. Why?-Robert E. Whelchel

ANSWER: Unlike SUPERSCRIPT and PAPERCLIP (competing programs that are identical to it in format), WORDPRO is specific to the screen width for which it is sold. I doubt if you can get an update for 80 columns without buying WORD PRO 4. This is not a fault of the Execom board, which works just fine on WORD PRO 4. Write Professional Software and see if they'll update your WORDPRO 3 to WORDPRO 4 for a fee. If not, buy a copy of PAPER CLIP or SUPERSCRIPT.-JS

GENEALOGY ANSWER:

In The PAPER, Sept. '82, Doris Mello asked for information about genealogy software. Genealogical Computing magazine is published by Data Transfer Associates, 5102 Pommeroy Dr., Fairfax VA 22032 (703/978-8490). It has many ads for genealogy programs and related information. They also run a FAMILY HISTORIANS NETWORK; call 703/978-7561 (6 PM-6 AM weekdays, Noon-6 AM weekends).-JK

MICROCHESS ANSWER (finally!):

D. Sheward found the conversion for MICROCHESS to BASIC 4 in The Transactor, v.3,issue #1:

```
     1. LOAD "MICROCHESS"                 ;use ,8 for disk, not DLOAD
     2. POKE 1055,0                       ;conversion done!
     3. SYS 4                             ;break to monitor
     4. .S "MICROCHESS 4",01,033A,2000 ;save to tape #1 not tape #2
 or     .S "0:MICROCHESS 4,08,033A,2000;save to disk drive #0
    (5. POKE 1055,0:POKE 655,76           ;after each load and before run if your
                                           copy doesn't resave easily)
```

PET TIMING ANSWER:

Regarding Bill Batcher's question on PET timing (Aug/Sept Issue, page6), all timing is controlled by the 8 mhz crystal oscillator clock. This clock determines the duration of each dot in the CRT display, 1/8 microsecond each, or one microsecond for each 8-dot wide character.

Dividing the clock by 512 gives the horizontal sync time period: approximately 64 microseconds. This in turn is divided by 260 to give the vertical sync time period, approximately 16.6 milliseconds or 1/60 second. The vertical sync pulse also triggers interrupt IRQ which updates the "jiffy clock."

So far, exactly 60 jiffies per second the crystal should oscillate at 7987200 HZ. My PET happens to run 0.128 percent fast, or 4.6 seconds per hour. Each PET will march to the beat of its own drummer.-Stan Logue

Comments

ATARI BASIC ISN'T KIDDIE:

While I have found MIDNITE quite accurate in its assessment of CBM equipment, the comments concerning ATARI and some other home computers smack of an amusing narrow-minded provincialism. A good example is the reference to Atari BASIC as "kiddie BASIC". This judgment is apparently based on the fact that Atari BASIC was not written by Microsoft, authors of BASIC interpreters for such serious computers as the OSI Challenger...

I am currently programming cartridge games for the 64. When I need BASIC, I'll take Atari's over Commodore's any day. It does what I want very conveniently, and that is what BASIC is all about...-Sheldon Leemon

TRIALS OF OWNING AN EARLY COMMODORE 64:

I developed a nervous tic reading "64 NOTES", wondering what on earth was wrong with my 64 that it was necessary to revise the ROM so quickly - and why didn't Commodore realize those problems before they made mine?!! Frankly, I think the lack of 64 software was a blessing. Rather than spending money, I devoted myself to learning about the computer, working my way through the manual, doing the programs - even developing some of my own.

What I resent, other than those secret 64 flaws, is illegible or non-working programs in Commodore's manuals and publications - the flagrant typos and errors...the constant hyping of 64 materials which are really not available...especially the MAX stuff. All of this is evidence of a company so anxious to put a hot item on the market that sloppiness became an integral part of the business.

I resent getting a 1541 disk drive with no instructions. When I contacted Commodore, I finally was sent a pile of Xeroxed pages - some with penned notations and many with errors or omissions. And I am furious about the drive itself, which was repaired 3 times in two months, finally driving Computer Country to offer me a new one. After waiting two months for it, I discover that any warranty on the replacement is the time leftover from the original - that expired a month earlier! If this is a bad one, it's my tough luck.-Gerald Smith

REPLY: In my experience, Commodore doesn't count time in the repair shop as part of the warranty period.-JS

COMMENT ON WRITING REVIEWS:

We look forward to this new subscription friendship, hoping for notes, tips, game reviews, software availability information--just anything about our beloved 64. We live in a really rural area (out in the sticks) and the only Commodore dealer is a ten-day journey by horseback in good weather from our location, and to top it off, has only two items of software for the 64, both of which must bring the store 200% profit when sold to craving 64 owners, such as ourselves. (Their prices are out of sight, if you follow my drift...)

After trying to fill out the REVIEW FORM printed in the Midnite/PAPER I have decided that reviews are not to be sent in from "brand new computer users." I really didn't know enough about the questions on the REVIEW FORM to even know how to answer them. I have, perhaps, wasted both your time and mine.

I now have a GOSUB and lack a RETURN, so I'll END now, apologizing for the idle chatter, and, adding a thank you for handling our new (NEW) subscription, let (LET?) you get (GET) back to more important things.-Vicki Anderson

REPLY: You definitely did not waste our time, Vicki. We're very glad you wrote, and we ran your review. Just try to follow the style of other reviews, and we'll do the rest. Thanks again!-ED

VICMON for the COMMODORE 64:

I have the VICMON (cartridge) pretty much worked out to run in the CBM 64. How about an opinion for presenting the procedure to the people, that already paid the exhorbitant $70 price for a utility that should have been included with every Commodore computer from the beginning anyway (and doesn't compare to the public domain utility MICROMON)? This version is on cassette.-Jim Halsey

ANSWER: XVM on our 64 exchange diskette is VICMON for the 64, and is free--for a $15 disk copying fee, of course! To load it, add ',1' to the load command (that is, LOAD"XVM*",8,1)-JS

USER GROUP NOTES

Nation-Wide Special Interest Groups:

ASSOCIATION OF COMMODORE USER GROUPS (ACUG)

This umbrella-type organization is being formed to bring together all U.S.-based Commodore User Groups for exchange of news, information, and public domain programs. One of their first objectives is to be placed on PUG mailing lists to receive group newsletters. They would also like permission to edit and reproduce this information.

Your response can be sent in either of two ways:
(1) BY LETTER, to Tony Ott, 633 Bent Oak Dr., Lake St. Louis MO 63367.
(2) BY MODEM, to Commodore Communications BBS 314/625-4576.

User Groups by Locality:

IOWA:

Iowa State University PET Users Group (ISUPUG). Contact Herb Harmison, 200 Engineering Annex, Iowa State University, Ames, Iowa 50010. A campus-wide users group that meets monthly with general interests in higher education and engineering research using Commodore equipment. We have a good mix of Commodore users, ranging from the earliest PET to the Commodore 64. We have a partial disk library, mainly of TPUG and ATUG disks.-Mark Niggemann

NEVADA:

FORTH Interest Group, Las Vegas NV. The Las Vegas FORTH Chapter held their third meeting in November at the Valley Bank Center. Contact Gerald Hasty, 737-5670, between the hours of 8:30 AM to 5:30 PM Monday thru Friday.-Gila Newsletter

VIC Users Group, Las Vegas NV. Meetings are held in the PCS Computer service department, 3900 W. Charleston Blvd. The meetings were announced in PCS Computer's newsletters and a local dial-up network called BBS, phone 459-1037 (if you have a modem).-Gila Newsletter

OREGON:

The **Oregon Commodore Computer User Groups Newsletter**, January 1983, lists 6 combined Commodore user groups (in Astoria, Eugene, Forest Grove, Gaston, Lake Oswego, and Portland/Gresham), 2 Commodore 64 user groups (in Portland, and Albany/Corvallis), and 11 VIC 20 user groups (in Vancouver, Oregon City, Wilsonville, Salem, Aloha, 2 in Portland, Philomath, Tillamook, Troutdale, and Prineville), and 1 amateur radio group. For more information on user groups in the Northwest, write John K. Jones at 2134 N.E. 45th Av., Portland OR 97213.

PENNSYLVANIA:

CACC (Capital Area Computer Club), Harrisburg Area. Lewis Buttery is starting the CACC. It meets the first Tuesday each month at 7pm at Union Deposit Mall. Contact him at 134 College Hill Road, Enola PA 17025 (717/732-2123).

Westmoreland Commodore Users Club, Greensburg PA, formed last spring, has grown to 68 families (approximately 200 members). At our last meeting 100 people attended and 18 families joined the club. Most of our people are VIC 20 owners, but we are getting some Commodore 64 owners. We have increased our VIC 20 library to over 200 programs. For more information, contact Jim Mathers, Club Coordinator, at 3021 Ben Venue Dr., Greensburg, PA 15601 (412 836-2224).

TEXAS:

SNUG (PET Users), Beaumont TX. SNUG meets each second Tuesday evening of the month at Westend Microcomputer Store at 290 Dowlen Road, Beaumont TX. The VIC 20 subgroup meets each first Tuesday evening at the same place. Members are invited to either or both meetings, but VIC discussions and demonstrations will be reserved for the subgroup meeting each month. PET/CBM includes the 2001, 4000, 8000, 9000 models, and the new "P," "B," and "BX". The subgroup consists of VIC 20, Commodore 64 and MAX users. Total Group meetings will be held from time to time.-Slim Wilson

VIC 20 NOTES

DATA TRANSFER QUESTION:

I have a VIC 20 and I currently am using a cassette recorder. I find it too cumbersome and slow to handle large amounts of data so I am ready to get a disk recorder. I have already stored a large amount of data (about 400Ks) and wonder if I can transfer that to the VIC disk recorder? If so, how do I go about it? If not, can I use another disk recorder for the job?-C. A. Barringer

ANSWER: Here is a small program that should read any sequential data file from cassette and rewrite it as a sequential disk file. It should work on any Commodore cassette drive and any Commodore disk drive.-JS

```
100 INPUT"FILENAME";N$
110 OPEN 1,1,0,N$
120 OPEN 8,8,8,N$+",S,W"
130 IF DS>0 THEN PRINT DS$:STOP
140 GET#1,A$
150 IF ST>0 THEN 180
160 PRINT#8,A$;
170 GOTO 130
180 CLOSE 8
190 CLOSE 1
```

ANOTHER FIX FOR TV INTERFERENCE:

Jeff Andrews reports some success in clearing up interference on his TV with the VIC and Commodore 64. He suggests replacing the antenna switch box with a standard 300-75 ohm transformer and the regular connecting cable with 75 ohm coaxial cable. This has worked for several people so far.-John K. Jones (OCCUG Newsletter)

FIXING VERTICAL PROBLEMS IN ZENITH AND SYLVANIA TVS:

The vertical problems in the Sys. 33 Zenith are cured by pulling plug 2H on the Chroma/Lum module 9-152. In the Sylvania chassis E03 thru E45, either install a 10K resistor across R316 or install a 2.2M resistor across R320, depending on your chassis). ONLY on chassis E06, 08, 20, and 21, ground pin 4 of IC 300. DO NOT jump any resistors in these 4 chassis.-John K. Jones (OCCUG Newsletter)

NEW! FOR YOUR CBM 4032, 8032, 8096 OR COMMODORE 64
PROOFREADING
SOFTWARE
NOW A 50,000 WORD DICTIONARY CBM 8050 VERSION

Now you can rapidly eliminate misspellings from your word processing text. Spellmaster (TM) **is delivered with a 35,000 word dictionary,** allowing the user to add up to 15,000 words (CBM 8050 version). **Direct Screen Editing of Mistakes.** Words "suspected" to be incorrect are displayed "reverse video" on the screen; simply correct the mistakes and resave your corrected file. **Add Words to Dictionary with a Single Keystroke!** Spellmaster makes it easy to Permanently Add any correctly spelled work in your text to your User Dictionary. **100% Machine Language Speed** allows a large word processor textfile to be Proofread in 2 minutes or less. **Uses dictionary of LITERAL WORDS,** not imprecise rootword approach. **Specialized medical and legal dictionaries are available. Menu-Driven and User Friendly. Compatible with Commodore 1541, 2040, 4040 and 8050 Disc Drives.**

"HIGHLY RECOMMENDED"
Jim Strasma —
Micro Magazine Dec. '82
"SPELLMASTER IS AN EXCELLENT MACHINE LANGUAGE PROGRAM"
Robert Baker —
Micro Computing Magazine Jan. '83

SPECIAL $89 CBM 64 VERSION

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OFFICIALLY APPROVED BY COMMODORE

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(813) 347-6733

WANT ADS AND ANSWERS

Wanted

WANTED: RF Modulator for the 64??
The 64 articles by K.P. and M.N. mention a high quality TV/game switch box (RF modulator). Where did they get them?-Andy Zloty

WANTED: Method for downloading CP/M software to CBM diskette format other than Lifeboat Associates or Madison Computers.-Jerry Key
REPLY (maybe): Alan Kahn has modified the ZRAM BIOS to be able to read 8 inch, single-sided, single-density, IBM-format CP/M diskettes down to a CBM relative file that ZRAM uses to hold CP/M info. Another ZRAM utility, "CBM read" goes the other way, from ordinary PET files to CP/M. You could use it with Steve Punter's TERMINAL program to convert a captured disk log of an "alien" CP/M file. But surely there are easier ways our readers will know about...-JS

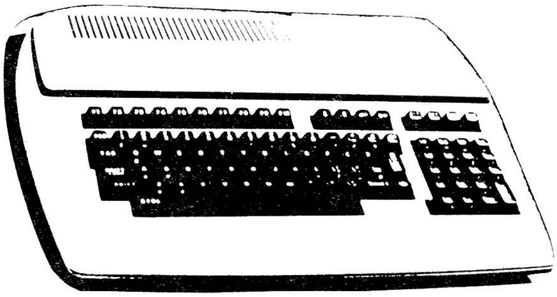
WANTED: Any 8250 disk utilities, such as condensed directory print routines (single directories), etc.-Jerry Key
REPLY(partial): I've returned the diskette of articles Jerry sent with a homebrew equivalent of EXPAND RELATIVE that works. Anyone got the official one to function yet? If so, how?-JS

WANTED: Credit Union business package.
Is there is a Credit Union business package available for Commodore equipment? At work, I am on the Board of my 1,000 member credit union, with different classes of savings and loan programs. There are varying % paid on savings and charged for loans. Interest and dividends are compounded daily, but posted monthly. Payroll deductions come in semi-monthly. Shares are posted to accounts and then payments made to loans. The system needs: daily, semi-monthly, monthly and annual balances; quarterly statements for members; and a clear audit trail for State Auditors. The cost for the program should include equipment and staff training. There should be a good market for such a package, as our data processing costs often exceed $400 monthly and rely on truck deliveries. Many credit unions are in similar situations.-Herb Gross, 833 Prospect, Elgin IL 60120

WANTED: Optical scanner.
An inexpensive optical scanner or light pen package for reading listings of programs printed in magazines or books. It would be a boon for fumble fingered typists like me. Along the same lines, would be a **scanner** that could read type or print and dump it **into a printer.** This would allow computer printer combinations to perform most of the functions of an office copier.-Herb Gross

For Sale

FOR SALE: VIC-1515 printer.
Three months old, but in like new condition. Includes approximately 1000 sheets paper. Price $250. Contact Larry Woolard, 1321 N. McLean, Lincoln IL 62656 Phone 217/732-6385 evenings.



CBM/PET REVIEWS

Here's a rough guide for all you potential reviewers to follow when sending us reviews and comments on your favorite or unfavorite programs. The information should fit on both sides of a 3"x5" card. It's all right if you can't fill in all the blanks. Just answer the questions that you can. You'll be surprised after a few issues at what you can discover about programs! Read old reviews to pick up the phrases you need. Maybe someday we'll print a glossary...-ES

REVIEW FORM Reviewer:
Program/Equipment Name:

(Author):
Price:
Seller:
Type of program/equipment:
Memory required:______K.
Protection: (dongle/foreign DOS/ROM chip?)
Language: (BASIC2/BASIC4/Machine Language/other?)
Format: (cassette/cartridge/diskette?)
Warranty quality: (full/90-day/none?)
Manual quality:
Special features, such as:
  graphics? (hi-res/PET/sprite/turtle/other)
  joystick? (optional/required)
  sound? (CB2/SID chip/other)
  other:

Hardware needed:
Computer:
Disk Drive?
Printer?
Modem?

side 2

Pluses:

Minuses:

Comments:

A typical program review could read:

NAME OF PROGRAM, by Author; $-- diskette from Name of Company. Type of program (word processor). For VIC/64, and 1541 (or for 80 columns, CBM disk drive, and ASCII printer). Requires 5K, BASIC 2 and DOS 2. DOS Protected (or requires cassette port dongle). Joystick optional. 90 day limited warranty.

Then your comments would elaborate on anything that needs explaining, such as advantages, disadvantages, special features, how it compares to simlar programs, and your opinion -- what kind of user would really appreciate this program? Recommended (for whom).-Reviewer's name
(Company address:--------------------)

BOOK REVIEWS

One of the joys of being a college computer science teacher is receiving unordered computer books almost every week. Book publishers send them in hopes we'll adopt them for class use. Some companies only offer to loan books briefly, but most professors, not feeling that well paid, ignore them. Why risk getting billed for a book very like others you can get free? In any case, I now have a large shelf of such books and will attempt a thumbnail sketch of each here.-JS

ARMCHAIR BASIC: An Absolute Beginner's Guide to Programming in BASIC, by Fox; from Osborne/McGraw-Hill. 264p. Paperback.

This is only the second full BASIC textbook I've seen that is simple enough to use in elementary schools. It is also great for people who know they should learn to program their computer, but are afraid. Its only threatening feature is a short quiz after each chapter, but the answers and glossary are in the back, and it begins and ends with narratives about computers. The book's prime weakness is its failure to show structure in programs. It also omits study of file commands and nearly all functions. Although not specifically for Commodore, its BASIC is limited enough to work on Commodore machines well. Definitely worth considering, along with Bob Albrecht's introductory BASIC book from Reston.-JS

BASIC--2nd ed. by Marateck; from Academic Press. 475p. Paperback.

Uses, but barely mentions programming structure. Needs more drawings and pictures. No mention of Commodore at all. Not recommended.-JS

BASIC--3rd ed., by Boillot/Horn; from West Pub., 1983. 416p. Paperback.

Another fairly decent BASIC manual that uses but doesn't mention structure. Uses some flowcharting. Occasional problems include sample outputs. Describes files (not using PET commands), but barely mentions string commands, and completely omits PEEK, POKE and SYS. Poor printing--the photos look like bad photocopies. Uses only one ink color and no screened highlight areas, although some pages have windowed-off sections. Apple][, IBM PC, and TRS-80 III each got a chapter, but Commodore is not mentioned. Forgettable.-JS

BASIC: An Introduction To Computer Programming--2nd ed., by Bent and Sethares, from Brooks/Cole, 1982. 350p. Paperback.

A competent introductory approach to generic BASIC. Nothing on Commodore, and the language extensions given are more appropriate to TRS-80 or a minicomputer, especially in the files chapter. Problem-oriented, rather than language-oriented. As for statements, MAT is described, but POKE is not. Uses flowcharts, and describes indenting for structure and top-down programming. Assumes the ability to do simple algebra. Chapters are loaded with useful worked-out examples (a binary search and a merge-sort), interspersed with problems (some with answers in the back), and ending with a review quiz. Inside covers describe major keywords. This is a text I may keep, but won't use much for reference.-JS

BASIC COMPUTER PROGRAMS FOR BUSINESS: Vol. 2, by Sternberg; $14 from Hayden. 384p. Paperback.

Includes over 70+ programs, divided into 4 sections: sales, personnel, administration, and routines. Developed in Microsoft BASIC for the now-defunct Altair computer, making the file examples incorrect for Commodore. Since files are most important in business programming, and no conversions are given for the currently-popular micro's, this book is less useful than it appears. Its primary Commodore audience will be good programmers that can alter its Altair commands--who don't need this book anyway. Still, the book is well done, with sample outputs, well-structured listings, symbol tables, and instructions included for each program. The most unique section is the first, which is a fairly complete "salesman" package, if you need that. Otherwise, look for books more tailored to a Commodore audience.-JS

BASIC PROGRAMMING FOR THE CLASSROOM TEACHER, by Miller, Chaya and Santora; $16 from Teachers College Press, 1982. 262p. Wire-bound.

Oriented to teachers using the "Big 3 Micro's", including PET. Not typeset, but quite readably printed from an original word-processor on a SuperPET using WORDPRO. I choked when they said "LET is especially useful...", and that the maximum TAB on PET is 38, but otherwise, the keyword descriptions were quite adequate. Has fun sample problems: "Write an efficient program that would produce the following output--I WANT A PIZZA..." Both problems and examples are well-suited to teachers, and work on all 3 featured micros. This is also the first book I've seen (other than our own guide) which properly uses strings of cursor controls to move the cursor to a preset row and column, rather than the usual slow melange of POKEs. No illustrations, but includes a glossary and answers. Though the book doesn't even mention LOAD, SAVE or files, it is a very good first book of BASIC for teacher training courses.-JS

COMPUTERS AND COMPUTING: An Introduction Through BASIC, by Graham; from West Pub., 1982. 387p. Paperback. Instructor's manual available.

For intro courses in computers using BASIC. Intended to be less demanding than the author's Introduction to Computer Science. Besides a strong emphasis on using structure when programming, the text describes how to use data structures popular in other languages, but difficult in BASIC, such as stacks, trees, and recursion. Uses a BASIC similar to Microsoft, but doesn't mention files. Also includes a sample (non-6502) machine language program. Visually, the book is less appealing than some competitors: only one ink color, no screened highlight areas or window areas. It's all just text, examples, figures, review questions and exercises, with a short bibliography. Only 13 pages are devoted to personal computers, and never mention a particular brand name. Not recommended.-JS

COMPUTERS AND DATA PROCESSING: Concepts and Applications with BASIC, by Mandell; from West Pub., 1982. 480 p. plus 190p. of BASIC/appendices. Hardback. Paperback study guide available.

An expanded variation of Mandell's Computers and Data Processing Today. Lacks the special microcomputer section in each chapter, but gives a much fuller explanation of topics like privacy and security, includes a color "tour" of a computer facility, and gives many real company applications. Also reprints portions of other related writings on computers. Retains the info on PET programming and other good features of the shorter book. If your students can afford it and can handle the extra 100 pages of reading, this excellent book is probably better than Mandell's simpler guides.-JS

COMPUTERS AND DATA PROCESSING TODAY, by Mandell; from West Pub., 1983. 322+p. Paperback or hardback. Also Available: Study Guide, instructor's manual & test bank, 100 overhead transparencies, and same title with 150 page supplement on BASIC programming.

Heavy color illustrations throughout. Each chapter has outlines, summaries, highlights, and focus on microcomputers. Includes cartoons, glossary, and appendix on career opportunities. Not much detail on structure. Sufficiently up-to-date to mention the coming conflict between Apple's "Lisa" and Visicorp's "VisiOn" software. Has 2 PET pictures and mentions Commodore once. The BASIC supplement gives PET, APPLE, TRS-80 and IBM changes for every example. Examples are properly indented, have important portions color highlighted, include sample outputs, and often have companion flowcharts. Does get into simple file-handling on PET, but omits such words as POKE and SYS.

Study guide gives a summary, covers key words, asks sample questions and assigns problems. Three sections cover the general text, the BASIC supplement, and an available PASCAL supplement. Instructor's manual includes learning objectives, chapter outlines, answers to sample problems, and 376 test questions with answers. A very complete system of learning aids. Would be a good choice for an intro course in computers, especially in labs using several popular brands of micro's, but wanting to give info about larger computers as well.-JS

COMPUTERS AND INFORMATION PROCESSING IN BUSINESS, by O'Brien; from Richard D. Irwin, Inc., 1983. 533p. Paperback.

Heavily illustrated with pictures and drawings. Uses second color in text to set off important material. Has chapter outlines, summaries, lists of key terms, review questions, and real world application examples. Introduces unstructured BASIC in a 55 page appendix that includes flow charts, listings, and questions. Also includes bibliography and glossary at end. Barely mentions microcomputers and Commodore. CBM, PET and VIC are acknowledged as highly popular, but dismissed as "Not supported well in field." Except for a lack of emphasis on structure, and the blind spot regarding micro's, this seems like a good textbook to use in beginning classes with little access to computers.-JS

FORTRAN WITH PROBLEM SOLVING: A STRUCTURED APPROACH by Bent and Sethares; from Brooks/Cole, 1981. 374p. Paperback.

Much like their book on BASIC, reviewed above. Based on FORTRAN 77; uses IF THEN ELSE and other aids to structured top-down programming. Problem-solving approach. Seems adequate, but no one will get excited about it.-JS

INTRODUCTION TO BASIC PROGRAMMING, by Mandell; from West Pub., 1982. 159p. Paperback.

This is the BASIC programming appendix from Mandell's other books reviewed above. As stated elsewhere, this is a good introduction for schools using Apple, IBM PC, PET and TRS-80 computers in the same classroom.-JS

INTRODUCTION TO COMPUTERS by Awad; from Prentice-Hall, 1983. 491p. Paperback.

Introductory. Starts with history, and focuses on information and systems analysis, rather than technology or programming. Heavily illustrated. Starts each chapter with an outline and ends with a summary. Commodore is mentioned, but with zero accuracy. (Did you know the SuperPET speaks only BASIC, has only 32K of memory, and can only work 6 disk drives?) Even funnier is their calling the Apple III a minicomputer. BASIC is described in a 30 page appendix (and COBOL in a 25 page appendix!) Might be useful in a large computer environment, for beginners not able to get at a terminal yet, but that isn't our situation.-JS

Other Reviews and Updates

VISICALC, HOME AND OFFICE COMPANION Update, from Osborne/McGraw Hill. Requires VISICALC and a system to run it.

Not bad for someone who just got VISICALC and finds the manual too complex. Good rote learning device until understanding finally dawns. Some applications are somewhat juvenile. I'd never use more than 15 of the templates.-JPD

WORD PROCESSING; A STUDENT WORKBOOK, from Galt's Educational Computer Consultants. Requires 16K PET, cassette or disk, CBM printer + PAPERMATE.

Consists of 22 assignments for students using the PAPERMATE word processor. Printed on 17 stapled pages using a dot matrix printer. Essentially a rehash of PAPERMATE's instruction book with specific examples of how to produce a document. Any self-respecting teacher with one hour's practice on PAPERMATE could produce better examples; PAPERMATE is a good program, but this book is not.-JPD

BUSINESS REVIEWS:

Accounting Packages

ATLAS 1200 SERVICE AND EQUIPMENT MAINTENANCE SYSTEM, from Commodore.

A vertical market package designed for the professional service and equipment maintenance firm. Its capabilities include an accounts receivable system, a financial reports section, and other reports specific to this type of business, such as a P.M. log.-Jim Widener (Gila Newsletter)

CYBER-FARMER 80, from Cyberia. Farm accounting package with VISICALC templates. Requires 80 col. and disk, set for 4022 printer. Protected by foreign DOS.

REVIEW #1: CYBER-FARMER consists of three packages: a general accounting package (CYBER-FARMER 80), FARMER'S WORKBOOK, and HOG PRODUCTION. I had three farmer friends review the program's content. They were, without exception, impressed. Two of them familiar with other packages found CYBER-FARMER the best they had seen to date, and considered it to be very comprehensive for their business applications. The two operational portions of Cyber-Farmer consist of VISICALC Templates, called FARMER'S WORKBOOK and HOG PRODUCTION SYSTEM. Once again all reviewers were impressed (who wouldn't be impressed with VISICALC?). I thought one friend (who runs a farrowing house) was going to become a permanent house guest as he ran trial after trial on the hog production system.

From a programer's point of view, I found the program well documented, well polished, easy to load and run with minimal research into the manuals, with an ENORMOUS built-in help program. The accounting system includes a sample diskette showing how to approach most situations; its few limitations do not seem to affect the people for whom the program was designed, providing adequate information for taxes, profit and loss, and such. The WORKBOOK and HOG PRODUCTION templates seem very comprehensive. I found no "bugs" in the system. The whole package reflected a high level of professonalism, obviously designed for the non-programer/user. Highly recommended.-JPD

REVIEW #2: GOOD POINTS: The inventory option is very thorough. The time display, "Help" feature and menu are nice, as is the non-flashing cursor. Editing of account totals is very complete. Includes a 1-key screenprint. Allows 150 entries before posting. Complete editing of the chart of accounts is possible, to personalize it, or to reduce the chart and increase disk storage and update speed. Very good documentation that includes thoughtful things, like a sample data diskette, a blank data diskette, labels, and a backup program diskette.

BAD POINTS: Took 25 minutes to copy sample data diskette, and a seemingly long time interval for processing. In the depreciation schedule, the double line printout (to compensate for 80 column printing) was difficult to read. Paper was used inefficiently. Erasing journal entry details after printing and posting was hard to accept as a farmer. Screen review of data is limited; some must go on paper to be seen. I didn't like having to restart to change data diskettes. No way to analyze feed fed per unit of production within system, but provides complete data for this, presumably to use in their FARMER'S WORKBOOK templates.

OVERALL IMPRESSION: One of the first "turn-key" programs I have seen for agriculture. After using SILICON OFFICE to perform similar tasks, I appreciate all the automatic functions included in CYBER-FARMER 80 to help the novice. FARMER'S WORKBOOK and HOG PRODUCTION templates would make an excellent complement to CYBER-FARMER 80, or as a good stand alone place to start.-Jim Burnham (farmer)

REVIEW # 3: A true aid for agriculture! Allows for journal entries, ledger updates, over 300 accounts and budgeting. Also includes depreciation schedules and cash flow reports (monthly, budgeted, variances). Is categorically divided for livestock, hogs, crops, grain, feed, etc. It is very simple to use, thorough and highly recommended.-DL

FREIGHT RATING AND INVOICE SYSTEM, from Commodore.

Another good vertical market package aimed at the transportation industry. It will provide freight rating according to the specific tariffs set forth by the Interstate Commerce Commission. Some capabilties include automatic rating using the rate base, weight break and commodity for the tarrif assigned, and invoice generation based on this data.-Jim Widener (Gila Newsletter)

MASTER ACCOUNTING, by Benson Greene; $45 from Master 3 Corp. Requires 32K, BASIC 2 or 4, disk drive, 2023 or AXIOM printer. Protected (buyer's name in program).

This "single entry" system designed for the small merchant does a lot for such a reasonable price. User-friendly, allowing backups. Well documented with a concisely written 100+ page manual that documents most program pecularities. Uses numbered accounts, provides sorting, and maintains the following files: Accounts Payable, Accounts Receivable, Purchase Order, Acknowledgment, Invoices, Vouchers, Statements, Bankbook, Cashbook, Parts List and Account Data. Will not allow one to "run in the red." Price Lists take care of part numbers, dates of price change, Payroll, Inventory, etc. Several areas allow one to adjust accounts, and check numbers (a useful feature). For an extra $10 per program, author offers several housekeeping programs to organize diskettes.

Has several limitations: payroll function is only a price list; doesn't analyze number of man-hours needed to produce a product or labor/management factors; and keeps tracks of checks, but cannot print them. No real "bugs" were encountered, and although not as capable as programs costing 6 to 10 times as much, has got to be a "best buy". Recommended.-JPD

PERSONAL TAX CALCULATOR, from Geneva Technologies.

This is a scaled down version of the PROFESSIONAL TAX SYSTEM. It will calculate Form 1040, schedules A, B, TC and G.-Jim Widener (Gila Newsletter)

Data Base Managers

INFORMATION RETRIEVAL AND MANAGEMENT AID (IRMA) Update

Designed for the professional recruiting firm that wishes to computerize their search and fulfillment needs. It allows for the entry and retrieval of items based on multiple search criteria.-Jim Widener (Gila Newsletter)

JINSAM EXECUTIVE,, $1295 from Jini Micro Systems Inc. Requires 80 columns and CBM 8050 or larger disk drive. Protected. No warranty.

Data manager designed for multiple computers sharing disk drives and printers. COMPLEX, SLOW and LACKS POLISH. Its "WEIRD DONGLE" (unorthodox protection device) consists of a ROM switching unit at $A000 (with an extra socket for WORDPRO), connected by four wires to the user port. There is no way to connect other devices, such as modems, to the user port. JINSAM is a serious attempt to turn a micro into a mainframe, complete with security passwords and the claim it will handle 99,999 Records OF UNLIMITED LENGTH. Enough options to make an eagle dizzy. The authors have tried to cover all contingencies and systems, as well as work with WORDPRO, WORDCRAFT, and VISICALC. Reasonably good documentation. Most pecularities are defined; for instance, users are informed when a file is in use. JINSAM does not permit files to be interrelated like SILICON OFFICE, and its security system prevents unauthorized individuals from seeing or changing restricted records. Several commercial and public domain programs can read and modify JINSAM files, but JINSAM's system slows things down for a dishonest employee.

JINSAM is complex! Even the documentation refers to option numbers, rather than names. Although generally forgiving of input errors, it does not provide clear screen instructions. Definitely NOT a "turn-key" package. Plan to spend a lot of time training operators. Also plan on restructuring your thinking and data to satisfy the program's structure. JINSAM also lacks polish for such an expensive package. Both versions I've seen contain numerous small, disturbing "glitches": copyright notices overwrite status lines, the help menu prints garbage to a CBM printer, you can't use commas, and you can lose the main menu (after having entered the first option then asking for a disk directory). Althoug h most data managers are slow, JINSAM carries this to an extreme. When changing options, one has to wait for ages while simply HUGE portions of the program are loaded (including the menu). Actual work production (adding files, modifiying records) does proceed relatively quickly. Housekeeping chores (erasing old files, backup diskettes, etc.) are handled almost automatically. All in all, JINSAM is a fasinating tool of great potential. It should be considered by those who need the ability to handle GIGANTIC masses of data.-JPD

REVIEW #2: Due to repeated non-payment of royalties, I have just notified Jini Micro Systems it must remove my SUBSORT (alias JINSORT) from JINSAM products by May 7, 1983. This will alter the product, and may affect its availability for a time. Considering our troubles in collecting agreed royalties over the past 2 years, I feel the non-warranty in the JINSAM manual accurately reflects the support users may expect for the price, and cannot now in good conscience recommend this product to anyone.-JS

Word Processors

PAPERCLIP Update, $125 from Batteries Included. 2K ROM at $A000, any 32K BASIC 4 machine, cassette or disk drive, but disk is definitely recommended.

Absolutely the most versatile word processor I have seen. Offers all features of WORDPRO at one fourth the price, including similar format commands, but doesn't require 80 columns or disk drive. Is easier to understand, offering readable screen instructions and cues when making errors or processing commands. Manual is easy to read, though not yet complete (6 pages are on diskette). Also on diskette are various printer programs and an undocumented program to create your own printer program. Supports CBM8023P, CBM8300 and Olivetti printers as advertized, although the 8023P routine slows down its output speed greatly. Adds some nice touches: sort lines; add horizontal and vertical column totals; horizontally scroll to 126 columns; and manipulate (repeat, insert, shift, move, delete, and erase) columns; read sequential and WORDPRO-type files; show on the screen exact locations of the loading/saving process. All it needs is a bigger text area and able to accept the graphic keyboard.

A few small "glitches": 1) When you switch from video to printer while using video output with global files, and you answer NO when the program asks if you want the next file fetched to complete a page, it hangs up (but who asks to print a page and then stop the printing in the middle?). 2) In highly structured "outline" type documents using right-hand justification, the left margin release command occasionally inserts a random extra space at the left hand margin of the first line of a paragraph, and you must retype the line. 3) Occasionally when using the VERY IMPRESSIVE column manupulations, if you have blank lines formatted between your information, you lose them when printing.

To review PAPERCLIP, I had two secretaries type in my 44 page manuscript. As the last minute changes arrived, they became completely discouraged; one correction changed a term appearing at least 25 times on each page. They had input text onto cassette; when I brought a disk drive from home, they witnessed true magic! They were totally agog at Global search and replace, Appending whole pages to existing files, and completely rearranging three sections of the book. I am now faced with a "Clerical Revolution" if I don't cough up a disk drive. On a WORD PRO scale of from 1 to 5+, PAPERCLIP rates a 7+. Highly recommended.-JPD

SUPERSCRIPT Update, from Precision Software.

At a recent show Jim Butterfield and I agreed that for our personal needs, text capacity is the most important feature in a word processor. For instance, the version of PAPERCLIP he uses is not standard, but one modified to allow 900 lines in the text buffer--enough for a long article. For the same reason, I now use SUPERSCRIPT for all my articles. Of the word processors available to me, it has the largest text buffer. My other reason for using it over WORDPRO is that it can easily read a program LISTed to disk. Compared to PAPERCLIP, I prefer it somewhat--primarily because PAPERCLIP files display some garbage at the start when loaded into WORDPRO. I'm looking forward to using SUPERSCRIPT with its new SUPERSPELL, which just arrived for review. Highly recommended.-JS

[See also Copyright Notes, where editor Ralph Bressler points out the blessings (?) of SUPERSCRIPT's DOS-based copy protection.-ED]

WORDCRAFT 8096

This WORDCRAFT version runs on and takes advantage of the 8096 machine. It offers the user 24K+ characters of text per document, and has the ability to send 10 to 12 pages of text from one PET to another through a sophisticated "error-checking" communications protocol.-Jim Widener (Gila Newsletter)

Other Programs

BUSICALC, $69 from Skyles Electric Works.

See the review of the 64 version under Commodore 64 Business Reviews.

CALC-RESULT, from Handic Software AB. Needs 8032/8096 and 8050/8250/9060/9090. Electronic spread sheet program.

VISICALC clone, but some additions make it a better buy. Can you really use the VISICALC manual? CR has an on-line HELP feature; Press "H" in the command mode, and you get one-line explanations of the various commands, in German, English, French or Swedish! Extremely versatile printer output formatting makes it easy to print only part of a work-sheet, such as just the totals. CALC-RESULT has about the same memory space as VISICALC, but 31 more "pages" are kept on the work-disk, which can be added together. It's like stacking them and having the total results end up on page 32 (great for daily to monthly totals!), and results from one page can be passed to another, so that formats can be MUCH greater than VISICALC. One more beautiful touch: when you end CALC-RESULT with the "Quit" function, your location in the program is saved, and when you restart, you are brought back to the SAME place! Protection ROM seems to have real code in it. Current VISICALC'ers can use their current formats with few conversions.

MINUS SIDE: CALC-RESULT failed to handle my 2022 printer properly (too many carriage return/line feeds). Once it went off and sulked when I used the REPLICATE command, and specified the range from high column to low (that is, D35 to A35). For spread-sheet users, I have seen none better than CALC-RESULT. Highly Recommended!-JDT

COMPILER REVIEWS

INTEGER BASIC COMPILER Update:

Allows user to produce machine language programs easily and quickly that can be self contained or used as subroutines. The version of BASIC used is a little different from CBM BASIC, so existing programs may have to be changed a little.-Jim Widener (Gila Newsletter)

DISK REVIEWS

FLIP'N'FILE, from Innovative Concepts, Inc.

One of the most intriguing tasks one faces after you accumulate more than ten diskettes is how to store the little devils. I have tried 3 different kinds of products. Without doubt the best that I have found up to this point is FLIP'N'FILE. Besides being attractive, you can carry the case without playing '50 Diskette Pickup'. Highly recommended.-Terry Taller

HAM RADIO REVIEWS

MORSE CODE TRAINER, from Taylormade Software.

See review of VIC 20 version under VIC 20 Ham Radio Reviews.

HARDWARE REVIEWS

BACKPACK POWER, from CSC Corporation. For CBM/PETs and dual disk drives.

It recharges continually from the machines's own power supply and supplies 15-30 minutes of reserve power. Its small size, 3-1/2 by 5-1/4 by 2-1/4, allows installation within the system cabinet. Very easy to install, turn on, charge up and start. Gave clear instructions to all different layouts of Commodore machines. Has proven to be reliable and given us no difficulty. Heartily recommended if your work on the computer cannot afford to be lost and you have frequent difficulties in power supply. Also recommended as just a line filter if voltage purity is a problem.-Gerald Hasty (Gila Newsletter)

SMITH-CORONA TP-1 with TNW 232-D INTERFACE, from Smith-Corona. Letter quality daisy-wheel printer. Parallel or serial RS232C interface models.

Uses either cloth or carbon film ribbons. Although you can set 16 different baud rates, 75 or 110 will work best... Some nice features are programmable margins, tab settings, auto underscoring, and a switch to set top-of-form mode. Is much slower than most other printers, but the price is right! The cable linking the TP-1 to serial interface (I am using a TNW 232-D) can be wired as: received data = Pin 3, request to send = Pin 4, and signal ground = Pin 7. 4 print wheels available. The printing can be speeded up by first presetting left margin and tab settings before starting. To set the left margin at column 10 and tab at column 25, your BASIC lines should look like this:

```
10 PRINT#1,SPC(24);CHR$(18)
20 PRINT#2,SPC(9);CHR$(17)
```

-Gila Newsletter

[NOTE: Computer Country of Springfield sells it; it seems to work.-ED]

SUPERBUS, from Cyberia. Networking system.

A multi-bus system with data security options that hooks up 18 PET/CBM's to a disk drive and printer and queues their requests. Most things are done with menus to help new users. Single board replaces 2 CBM ROMs in each unit. Doesn't work with some utilities (POWER and EHS's STCP terminal program), and I always forget to turn off the data protection scheme (a menu program). Very good for offices, but not so good in a heavy programming environment.-Mark Niggemann

See the following reviews under Commodore 64 Hardware Reviews.

CARDETTE/1, $40 from Cardco. Cassette interface for all models.
CARD/?, $79 from Cardco. Interface.
SMITH-CORONA TYPETRONIC TYPEWRITER and Supercord interface, about $800.

COMPUTER LANGUAGE REVIEWS

FORTH for PET, by Cargile and Riley, from A.B. Computers. For PET/CBM with CBM disk drive.

This adaptation of fig FORTH to CBM is a joy after struggling with Seiler's excellent but undocumented ATUG version. Like a do-it-yourself kit of pre-assembled modules for FORTH, including PET-style screen editor (choose 40 or 80 column), STUTTER for hopalong cursor, printer support for ASCII or CBM, PET I/O support, string functions, special utilities to support various disk drives, '79 standard additions, special new words and editor enhancements. Load FORTH, the modules you plan to use, and screen 2 to save your new customized FORTH. Follow instructions on screen 1 to format a new FORTH disk. Manual includes disk functions, and fig-FORTH glossary. Diskette also contains a FORTH assembler, several documented utilities (clock functions, "calendar", calendar functions) and uncommented demonstrations. Adds 77 screens to an already considerably-enhanced FORTH. Authors have gone to great lengths to retain most of PET's special features and disk conveniences in FORTH, even RESET to cold-start BASIC (without closing disk files, unfortunately). The instruction books for FORTH are superb. A.B. Computer's entourage of competent authors has clearly done it again!-Dick Adams

FORTH Update, from FSS.

Several telephone conversations [when ordering FORTH] ...were handled well. But some screens were unloadable. A letter to FSS produced absolutely no reply! The use of FORTH screens is implemented by direct access to the disk drive... very ill-advised on DOS 2. Relative records would have provided better integrity of the system and fit the FORTH philosophy of disk blocks. Also...any disk access disengages the printer, and it has to be reset. I find this version very good for learning FORTH programming if I don't use the disk drive or printer. FSS's FORTH follows the figFORTH model well and helped other programmers in the area learn their FORTH (non-Commodore).... Great to learn with, but useless for developing application software.-Gerald Hasty (Gila Newsletter)

MAGAZINE REVIEWS

COLLEGIATE MICROCOMPUTER, Quarterly, $28 from Rose-Hulman Institute of Technology. Terre Haute IN.

According to a student I know who goes there, Rose-Hulman has a fine large computer program, but he hadn't seen a micro there all Fall last year. This will probably change now that they are sponsoring a micro magazine. The first issue shows promise--it's less stuffy than most educators' magazines, and starts each article with a summary and list of key words. Some articles were quite nice, especially one reprinted from DATAMATION. I also enjoyed the one on how to organize a summer computer camp.... Unfortunately, although Rose-Hulman has now discovered micro's, they have yet to discover that anyone besides Apple makes them. (On the other hand, since they DID send us a review copy, they may have heard of Commodore, too.) This first issue will be of greatest interest to college teachers of technical subjects, but even though I fit that mold I will probably pass it up for now.-JS

MODEM REVIEWS

STAR MODEM, 1200 Baud Version, from Prentice.

Not bad!! Works identically to the 300 baud version. I like the faster speed. Right now it connects an 8032 and EHS's STCP terminal program to a NAS AS/6 (IBM 370 compatible) mainframe computer. A definite MUST for anyone who needs to transfer data at the faster speeds.-Mark Niggemann

UTILITY REVIEWS

HESCAT Update, from HES:

All the ads and most reviews I've seen infer that HESCAT will catalog up to 131 diskettes on a 4040 dual drive with a 16K PET/CBM. On my 16K PET (2001 2.0 Upgrade ROM) HESCAT will only catalog 41 diskettes.-Gary Stone

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DATE DUE: The program school librarians have been waiting for. Handles about 350 transactions per day and prints reports for you on those pesky "overdues". Easy enough for a student assistant to use. (4040 disk only, runs in 16K or 32K). Price $39.50.

LEDGER: For school in-house accounts or personal bookkeeping. Prints reports in journal or ledger format. Operates with 10 single keystroke commands. Eliminate the "oops" factor in your accounting. (4040 disk only, runs in 16K or 32K). Price $29.50.

SCRIPT EASE: A fantastic word processor for the 40 column screen. Developed for children and can be mastered in a few hours. Does just about everything the expensive programs will do and has some features found nowhere else. One command converts the computer keyboard into a standard electric typewriter keyboard for touch typists. (4040 disk and 32K only). A super value at $39.50.

MULTIPLE CHOICE: A teacher's friend. Produces multiple choice tests for teaching, testing and reinforcing. Makes different forms of the same test, and randomizes the item and choice order for security. Test can be taken on the screen or you can produce paper copies. Select all or part of your test file. (4040 disk only but can be saved and used as a tape program. Runs in 16K or 32K). Price $29.50.

FOOTBALL SCOUT: Here's the one for football coaches. Scout the opposition and feed the facts into the computer. Produces reports on individual plays, tendancies, and distance gained per play. Know more about them then they know themselves. (4040 disk and 32K only). A $5.00 demo is available. Price $79.50.

BASKETBALL STATS: Keeps statistics for every player for a whole season. Know in black and white who your stars are and use the reports to motivate your players to do better. (4040 disk and 32K only). A $5.00 demo is available. Price $39.50.

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COMMODORE 64 REVIEWS

COMMODORE 64 BOOK REVIEWS

COMMODORE 64 USER'S GUIDE and REFERENCE GUIDE

REVIEW #1: Commodore has done an excellent job of organizing and explaining things in their Commodore 64 User's Guide and Commodore 64 Reference Guide. The first contains a lot of details that require correcting. Many of the examples will not work as shown. Over all, the explanations of what is available and how it works is well done. The Reference Guide is truly great. An inch thick and packed with details on everything (including chip specs and a schematic of the entire computer). It will require very few updates and all the programs' examples work!-Roy Wagner

REVIEW #2: One use I immediately had for the Guide was to convert Bill Finzer's PAKJANA 2.4 dancer program to the 64. It was mentioned in the October '82 Compute!. Fortunately the conversion was very simple. POKE 225,128 in lines 5820, 6035 and 6037 have to be changed to POKE 218,128. I still have to clear up the TAPESAVE routine, but at least it works.-Herb Gross

64 PROGRAMMER'S REFERENCE GUIDE HELP DISKETTE, $10 from "When I'm 64" Software.

Like our own Help Diskette, this product is designed to help readers of a book. The PRG Help Diskette includes all the program examples from the book, listed by the book page on which they are found. Errors in the published listings have been corrected, and all the programs we tested worked quite well. A great time and frustration saver for new users.-JS

COMMODORE 64 BUSINESS REVIEWS

Accounting Packages

CBM 64 PAYROLL SYSTEM, $100 from MicroSpec. Needs 1541 disk. Printer optional.

REVIEW #1: A fairly simple payroll program, all in one BASIC module. Said to handle up to 100 employees. The program itself is easy to change and allows any user to view and edit any data-- very helpful in a program the business owner will run, but hopelessly open to fraud if run by anyone else. The program also does not force you to maintain an audit trail. Instead, detailed records are periodically erased without maintaining an archival backup or paper copy, unless requested. MicroSpec leaves state taxes to the user to calculate, although they offer to add a state tax calculator feature for an unspecified price, "if you have a 16K expansion." (Is this an updated VIC program?) Its worst feature, shared with MicroSpec's DATA BASE MANAGER, is the atrocious spelling and grammar in the instructions. Would anyone putting out a package with so many errors in the manual bother to thoroughly test the program? At least the binder is "first class". A nice start, but not a finished product. Not recommended.-JS

REVIEW #2: A free update is now available. Compiled in PETSPEED, and includes a sort by key option. Cleaned up and much better.-BMD

Data Base Managers/Mail Lists

DATA BASE MANAGER, $80 from MicroSpec. Needs 1541 disk. Printer optional.

REVIEW #2: A simple file-handling program, all in one BASIC module. Said to handle up to 600 full-size records (or 1200 records of under 127 characters each.) Only 1 file allowed per disk. Data file uses random, rather than relative files (making its data blocks vulnerable to erasure by a DOS "validate" command). Allows user to easily alter program or view and edit any data. Has usual minimum features; can also search file for particular data items and total numeric fields. Yet, it lacks an alphabetic prime key, sort function and option to restructure data later. Its worst feature, shared with CBM 64 PAYROLL SYSTEM, is the atrocious spelling and grammar, in a lavish binder. As the first commercially available file handler I've tested for the 64, it might hold you temporarily, if you need one badly. Otherwise, not recommended.-JS

REVIEW #2: A free update is now available. Compiled in PETSPEED, and includes a sort by key option. Cleaned up and much better.-BMD

RESEARCH ASSISTANT 2.0, $25 from TOTL Software. Cross reference programs.

REVIEW #1: A pair of cross reference programs: one to build the data file and one to cross reference the data. The file must be saved before it can be cross referenced, and requires a disk drive to update or append the file. Allows up to 9999 references to one source, with page numbers, comments (up to 1020 characters), up to 12 keywords, and key dates for each reference. Entry is slow, since it must save data to disk when the buffer fills. Source information includes title, author, bibliography data and a source ID number. Cross reference program lets you specify dates and keywords, then generates a cross reference table of source and reference numbers to fit the request. Table can be saved on tape or disk, and subsequently printed if you load the file-build program. All in all, this is another well done program. You really need a disk drive to use it well. Best where you do a lot of cross referencing within a relatively few sources. While the program is aimed at book research, it could be a cross reference filing system for many other situations. Recommended.-LW

REVIEW #2: This word processor [?!-ED] is a bargain for the money, but as most bargains, you can expect some problems. The documentation is poor and difficult to understand. There are no frills, such as indexing, but for simple home use, recommended if you don't mind muddling through the instructions.-DL

Word Processors:

PAPERCLIP, $125 from Batteries Included or Software International.

Now available for the 64, but we haven't seen it yet. Meanwhile, see review of the CBM/PET version under Business Reviews.

SOFTWRITER, by Raymac Software Products, $25 from Skyles Electric Works. For VIC 20 + 16K memory expansion or Commodore 64 with CBM or RS232 printer.

I use SOFTWRITER with my Commodore 64 and Epson printer. Although not elegant, SOFTWRITER does provide double-width printing, indented paragraphs and editing functions, such as insert, delete, append, and block move. Beware if you select the filing or printing option from the menu; an invalid response could wipe out your text. My manual has poor print quality and is somewhat disorganized from being adapted to the 64. I would not recommend SOFTWRITER for an involved writing project, but I feel my $25 was well spent.-Marilyn Byers

TOTL.TEXT 2.6 Update, $40 cassette, $45 disk from TOTL Software.

The new version, TOTL.TEXT 2.6 + Chickspeed, adds machine code routines to handle the I/O and printing, making a dramatic impact on loading (down from 6 minutes to less than 30 seconds). It also configures itself to your printer with a few questions at the beginning. Insert, block move, and block delete have been added to edit mode, along with a shortcut for entering common format controls. You can set up to 10 tabs at a time, more easily change colors and underline, use two special character sets, and link with TOTL.LABEL files to produce form letters. The machine code routines are being added to the VIC version and other TOTL.Software programs -- an even better value for your money.-LW

WORD PROCESSOR, from Intelligent Software.

Jeff Andrews reports that the Bill Robbins Word Processor is not as versatile as TOTL's, but it's far easier to use for letters and standard formats.-John K. Jones (OCCUG Newsletter)

Other Programs

BUSICALC, $69 from Skyles Electric Works. Versions for all current models. Review copy for 64. Electronic spread sheet.

Written by SuperSoft in England and sold in America by Skyles, this electronic spreadsheet program is handy to have. Commands include jump (to a location), save (disk or tape), load (ditto), insert, delete, print (all or part), and others. Similar in scope to VISICALC, but larger (99 rows by 676 columns of 5-18 characters, depending on memory requirements) and a lot cheaper! The manual is very well done. When moving the cursor around a spreadsheet as large as 50 rows by 52 columns, with lots of figures, it seems to move a little slow. A well put together package at a very reasonable price. Highly recommended.-JO

REVIEW #2: This is an easy spreadsheet to use. After reading the manual, I had no trouble with my first worKsheet attempt. There are 11 control functions which allow you to save, load, format, and massage as well as print your spreadsheet. BUSICALC evaluates formulas while retaining the formula and displaying the results. Sometimes the printing is slow. Recommended if you're in the market for a VISICALC program for your 64.-Eugene Byers

COMMODORE 64 EDUCATION REVIEWS

BINGO MATH Preview, coming cartridge from Commodore.

The most enjoyable math teaching game I've seen. Using bingo for addition, subtraction, multiplcation and division is great. All it needs for our family is a way to handicap adults competing with children. Recommended.-JS

SKETCH AND PAINT, $20 cassette from Comm*Data. Protected. Requires joystick

A neat program to allow you to draw on the screen, using the joystick to guide your pen. Includes choice of colors, ability to draw a line or box between two defined points, paint in an enclosed area, erase, reverse colors and background, and sound that changes with position on screen. My four year old really gets a kick out of it and my two year old likes to reverse the screen. Recommended, especially for younger children.-LW

COMMODORE 64 GAME REVIEWS

ASSAULT ON MEMORY ALPHA, $20 diskette from American Peripherals.
The first adventure game commercially available for the 64. Jamie and I really enjoy playing it. Features a space motif, breaking into a computer installation to steal a memory card. The real challenge is solving the 7 riddles at the end. Each wrong answer means you have to start over again; be sure not to make a typing error, because the computer doesn't wait for you to hit RETURN. 10 levels of difficulty. Unfortunately, it uses no graphics after the introduction. Has touches of humor.-ES

CATACOMBS OF GOLD, $20 diskette from MicroSpec.
A fairly trivial enhancement of the old DUNGEON game from Len Lindsay's PET Cassette Exchange. Does have a bit of color, graphics and sound, but nothing worthy of the price. Although I enjoyed DUNGEON a lot when it was all we had, I wouldn't voluntarily play it now. Jamie, age 7, agrees--once through and ignored ever after. Do not buy.-JS

CENTROPODS, $20 cassette from Comm*Data. Requires joystick.
A CENTIPEDES (tm) type game (and every bit as interesting). Takes a long time to load. Uses both keyboard and sprite graphics. Apparently all machine language. Very fast moving game. Very good sound. Recommended.-Don W. Gaikins

MAZE MAN, $40 cartridge from Creative Equipment.
This is a PAC MAN clone, carefully altered just enough to be considered original. Its graphics and sound show far more effort than those in PAKACUDA, but somehow it doesn't seem quite as much fun to play--possibly because some rules of winning are different. We'll have a further report next issue.-JS

MOTOR MANIA, $30 cassette from UMI.
REVIEW #1: Like an arcade game on my 19" color TV. Obstacles include boulders, nails, oil slicks, other automobiles, emergency vehicles [fire engines] at intersections, dirt roads, and direction changes. Avoid obstacles to rack up miles. Instrument panel contains speedometer, generator, and fuel gauges. Increasing your speed sounds like revving the engine; the siren's volume increases as the emergency vehicle gets near. Several friends in their twenties enjoyed it a great deal, as they laughed at each others' accidents!-Ray Merry

REVIEW #2: You control a car on a perilous trip through twisting highways, mountain roads, and country dirt roads. Various hazards such as logs, potholes, and glass are on the highways. Overall, the graphics and sound are excellent. The wheels seem to rotate and turn slightly, although they got larger on different parts of the track. I enjoyed this game very much, especially at the higher levels, with more obstacles and higher scores. I found the price a little steep compared to a cartridge, but it's worth buying.-Denis Philipps

REVIEW #3: UMI's first effort, if not spectacular, is at least the same quality as their popular VIC 20 games. A fast-action road-rally game that requires the player to think, as well as react. Speed is not of paramount importance... compared to the rewards for driving defensively. Points are earned for passing a gas station without requiring fuel or repairs, and for completing a map section. Besides avoiding fatal collisions, you... can lose a car by running out of gas, driving too slowly, failing to repair a damaged radiator, or getting a flat tire with no spare. 10 levels of difficulty. You must approach the non-fatal hazard to avoid the fatal hazard. Graphics are adequate, but don't explore the computer's full potential. Likewise, the sparse sound effects are appropriate, but hardly use the exceptional music synthesizer chips. Stands up to repeated play. All in all, a promising start.-Sheldon Leemon (Video Review)

PAKACUDA Update, $25 cassette from COMM*DATA Computer House, Inc. Protected. Machine Language. Guaranteed. Joystick required

Uses hi-res and sprite graphics. The Pacman of the fish (barracuda) world. One player only. You guide Pakacuda around a maze to gobble little fishes (instead of dots), avoid four pursuing octopi (replaces ghosts), and rack up points. Munch one of four electric eels to receive the "charge" needed to dine on octopi (beats power-pills). As long as Pakacuda is eating little fishes, sound accompaniment is Jaws revisited; otherwise, the game is silent. We've noticed our Pakacuda can get caught at a few turns. If you clear the screen, the action and sound speeds up on a second screen. In our opinion, Pakacuda has more personality than Pacman, and his lips are quite cute.-Vicki Anderson

RETROBALL, $40 cartridge from HES.

Air hockey game. This game was demonstrated after a CIPUG/Champaign meeting 2 months ago. It was the first cartridge we had seen for the 64. Even so, we couldn't find anyone willing to give this game a rating better than 2 out of 10. To its credit, the game is fast--blindingly fast, just like real air hockey--and it does have color. But its visual appeal is nil, dominated by a red hockey puck, appearing as a large red blotch on the screen. It's nice to be first, but if HES puts more effort into the graphics, they'll have a much better product. Not recommended.-JS (and everyone else in sight)

THUNDERBOLT, $20 diskette from Iberius. Requires joystick. Protected.

A graphic space shooter arcade-type game, written in BASIC and compiled with PETSPEED. Quite good - very well done. You use the joystick to control cross hairs for shooting alien space ships. Very good use of sprites for space ships and laser blasts. Five levels of difficulty. Very fast moving. Color and sound are fair. Some sounds are repetitious. No way to make a back-up copy. Summation of score. Recommended.-Don W. Gaikins

TSI CYCLES, $40 cartridge from Creative Equipment.

A well-done offshoot of the old SNAKE program, more recently known as the TRON cycle game. Uses vivid colors, multi-voice music, fast action, and allows you to play against either the computer (tough!) or another human. Idea is to make the other player run into someone's tracks, yours or his own. Optional wraparound walls are quite impressive. Tread patterns are often so vivid that I forget to concentrate. I hadn't expected to like this game, but I do, especially when used by 2 humans. A full 8K of ROM in a well-made cartridge.-JS

Commodore Cartridge Previews

CLOWNS:

ACROBAT updated from PET to 64. This is one of the best PET games, and is much harder and faster on the 64. The figures are also more detailed, but somehow less "cute" and enjoyable than in the PET version. When I bragged about its being non-violent, I was reminded how often the acrobats end up as spagetti on the floor. Even so, recommended.-JS

KICKMAN:

A very good 64 version of the arcade game. Not available for VIC. Excellent graphics. Non-violent. Highly recommended.-JO

MIDNITE DRIVE:

64 version adds a joystick control, with automatic transmission that makes it much faster than VIC version. Very nice play. New digital speedometer helps keep a steadier speed. I like the cracked windshield when you crash!-JO

OMEGA RACE:

PREVIEW #1: Better play, but not as smooth as VIC version. I miss the VIC's song between screens, but otherwise, the sound effects are much better. The 64 version allows much better control of the ship than the VIC.-JO

PREVIEW #2: Though a killing game, it also gives an excellent image of weightlessness, and often strikes me as funny as I go bouncing around out of control. Recommended.-JS

RADAR RAT RACE:

PREVIEW #1: 40 column display improves the screen's playing field, but it reacts and plays same as VIC version.-JO

PREVIEW #2: My personal favorite of the new crop of cartridges, and also a favorite of son Jamie, who prefers to play without using the "magic stars." Jamie has even found new layouts and a speed version in later boards.-JS

SEAWOLF:

Player with top submarine has huge advantage over one with lower sub -- good when unequal players are matched. Teaches idea of leading a target when shooting, but otherwise, it's just a killing game. Sounds are very realistic.-JS

COMMODORE 64 HARDWARE REVIEWS

Interfaces

CARDETTE/1, $40 from Cardco. Cassette interface for all models. Lifetime full guarantee.

This fairly small box (the size of 2 cassettes) lets you use any cassette recorder with your Commodore computer. It works well thus far, and is a good alternative to Commodore's Datasette, especially if you must save $40, or you already have a good cassette drive on hand. The hidden cost is juggling 2 more cables and a box, cluttering the back of your computer. Cardco's lifetime full guarantee sure beats CBM's 90 day limited warranty. Well worth considering.-JS

CARD/?, $79 from Cardco. Centronics parallel printer interface.

REVIEW #1: Contrary to first impression, the "?" doesn't mean they haven't named the product. It stands for the abbreviated word PRINT. Gene Beals of A.B. Computers reports this product works well, has been approved by Professional Software as working on WORDPRO/64, and that he will stock it. Personally, I'm amazed Cardco sells it so cheaply, since it is microprocessor-based. Its only close competitor costs far more. Will say more after further testing.-JS

REVIEW #2: I use this with a Gemini Star and my WORDPRO as well as for my regular programming. The symbols they use for the cursor commands are quite useful; for instance, cursor down is <cd>, clear screen is <cs>, and when you change the color, it gives you the symbol <cg>. It's worth $80.-Scott Barker

C64-LINK Update, from Richvale Telecommunications.

REVIEW #1: Based on "your" recommendations, I bought the C64-LINK. I had no problem in ordering it directly from Richvale. It is truly fantastic. The price you quoted was Canadian dollars--it's $148 US. Perhaps you can answer a small problem I have noticed with it when writing to disk. Occasionally I get a ?break error. Sometimes the file is partially written to disk, other times not at all. I use SAVE "0:file name",8. -Roy Wagner

[Nope, don't know the answer to that one. But RTC does report they have just revised their relocator program to work with WORDPRO/64.-JS]

REVIEW #2: This IEEE adaptor box has a monitor and takes almost no room at all. As a lap style 64 user, I love the fact that it doesn't need a table to support it (other IEEE's are too big/heavy). I use it whenever I need IEEE, but it isn't quite good enough to use instead of a 1541. Don't buy it as a substitute: it affects things inside the 64 too much. For example, machine language I/O can be done two ways: one works with IEEE and one doesn't. Many programs use the way that doesn't work. The built in monitor is limited, but useful. I would prefer any other monitor on cartridge (if it existed), but use the 64-Link meanwhile. All in all, a nice addition to a complete system, but don't try to build a system around it.-KRP

$100 APPLE EMULATOR

A Compuserve user recently paid $100 for an Apple 'emulator'. The catch? It has to be hooked up from slot 2 of an Apple to the serial port on the 64. Then type in 2 loader programs on the Apple and Commodore, after which it will load BASIC programs (only) from the Apple to the 64. You still have to modify keywords that differ between PET and Apple BASIC. $100 to save typing in programs from a printout!!!-John F. Jones (OCCUG Newsletter)

Printers

SMITH-CORONA TP-1 PRINTER, from Smith Corona dealers.
See under Hardware Reviews.

SMITH-CORONA TYPETRONIC TYPEWRITER and Supercord interface, about $880 from Smith-Corona dealers. For 64 and VIC (and CBM user port)?

An electronic daisy wheel typewriter version of the TP-1 printer, using the same print wheels and ribbons. Probably the cheapest way to get a letter quality printer AND a typewriter there is. This combination worked the first try. Has the sharp print of the TP-1 and a regular typewriter keyboard. There are some concessions, though: no automatic underline and the slow speed (under 10 cps, because the typewriter is only getting data at 75 baud). Its non-intelligent interface connects to the user port and contains a one character buffer and the PET to ASCII conversion. I am not sending any nulls for the carriage return and have not lost any characters yet. Increasing the baud rate to 110 just gives straight garbage. Highly recommended if you have a limited budget, can give up some speed and "niceties," and need a letter quality printer.-LW

Other Equipment

CARDRITER/1, $40 from Cardco. Light pen. Lifetime full guarantee.

A simple raster scan light pen. Includes 4 instruction/demo programs on 2 cassettes (1 for VIC, the other for the 64). Not at all precise on the one other 64 I was able to test, but does work if the VIC chip is good (mine isn't).-JS

CR-5500 MONITOR, $129 from Comrex. TV monitor.

The nicest green screen I've seen for a while. And at around $129, definitiely a best buy. It handles the 18 Mhz CBM Bx-256 output without a jitter. Looks just like an 8032 screen. As good as the IBM or Apple III monitors, and much cheaper.-KRP

CT-7711 7" COLOR MONITOR, from Panasonic. TV monitor.

Slide tuner on the RF side makes this a less-than-ideal regular TV, but as a monitor, it's dynamite. I like the styling, the small size, the solid screen/colors, and the fact that you can stack stuff on top of it (although I think it could fry eggs. Good for freshening popcorn). Nice box.-KRP

STICK STAND, from K-Byte. Joystick holder.
I saw these at the Commodore Games Group office and had to have one. It's a wide base that a Commodore or Atari joystick fits into, and a big red ball that pops onto the handle. For those of us who notice the left wrist getting sore, it's a God-send!-KRP

VIDEO PAK 80, $180 from Data20. 80 column adapter.
REVIEW #1: Plugs into cartridge slot of the 64, and allows it to generate 80 columns on a monochrome monitor. Works fine and has a clearer display than even the 8032, except that after extended use, the display seems to "glitter" (a variation of brightness within characters.) Switches easily from 80 to 40 columns and back, by pressing the bottom function key.-Bob Smith

REVIEW #2: Early reports are that a variation, called Z-80 VIDEO PAK will be available momentarily. It will be able to run CP/M, once a suitable version of CP/M is available. We understand Commodore's CP/M for the 64 will run on it, but have not actually seen this version yet.-JS

REVIEW #3: A customer just damaged his 64 after plugging in the video pak. Now neither works. No word yet on what the problem is (hopefully just a blown fuse).-BMD

COMMODORE 64 LANGUAGE REVIEWS

LOGO, from Commodore.
The pre-release version I explored is a full Terrapin LOGO language adapted to the 64, not merely a wandering turtle. I thoroughly enjoyed watching the turtle perform all the antics I had previously tried on the Apple][. With the aid of a Terrapin manual for Apple, I experimented with defining variables and creating procedures to write simple sentences. Using the 64's cursors and insert/delete, editing was, of course, much more pleasant than on the Apple][. The TRACE and NOTRACE features of Terrapin LOGO are very handy (missing from Apple LOGO). Apple LOGO abbreviations do not seem to work in the Commodore version, so typing words such as "textscreen" is a little tedious.-Marilyn Byers

COMMODORE 64 UTILITY REVIEWS

PET LOADER/EMULATOR, $20 from Education Circuit, Inc.
Works as advertised when tested on random programs in the PET public domain programs from San Mateo Co. CA. Anyone else have any comments?-JO

VICTREE, $90 from Skyles Electric Works. Versions for VIC and 64.
For anyone who does BASIC programming on their Commodore 64, this utility ROM is a MUST. Plug it into your cartridge slot, SYS into it, and you're off. VICTREE occupies 8K at the top of memory, and gives you 42 commands, including BASIC 4.0 disk commands and programming aids from 'auto' (line numbering) to 'trace' (a running program line by line). The 100+ page manual is well done, with complete descriptions and examples. Though a little higher priced than most utility ROMs, it's an excellent product for the 64. Highly recommended.-JO

VIC 20 REVIEWS

VIC 20 BOOK REVIEWS

KIDS AND THE VIC, by Edward H. Carlson; from DataMost. Wirebound.

We've been getting phone calls from everywhere praising this book. Aimed at the 7th grade reader with a cassette-based VIC, it succeeds admirably. Even adults are captivated by its simple, but not simplistic style and captivating cartoon illustrations. Each chapter includes notes to the instructor, some questions, the lesson, and assignments (with answers in the back.) There are 33 short chapters, covering all the important keywords, but not rarely-used functions or file commands. There is also a glossary, list of error messages and special symbols in the back. Highly recommended.-JS

MASTERING THE VIC 20, by A. Jones, E. Coley, and D. Cole; $15 from Wiley. Diskette of 34 useful programs sold separately for $20

Written as a sequel to the VIC Programmer's Reference Guide, for readers ready to deal with PEEKs and POKEs. The eight chapters cover the gamut from simple VIC BASIC to longer programs, arrays, speed techniques, special effects, and hexadecimal representation; machine language; how the VIC is built, its memories and "rampack" configurations when you add the various expanders; types of graphics; the 1540 and 1515 peripheral devices; accessories, expansion port, user port, and machine monitor (VICMON) and how to print memory hex dumps onto printer; architecture (intro to hardware, interpreter, kernal, interrupts); and machine code (6502 chip), plus a program to get sign graphs. Fantastic! What every knowledgeable VIC own er needs if they really want to program. By far the best book for VIC that I've seen yet!-phone review from Jeff Turney

VIC 20 BUSINESS REVIEWS

See reviews of the following programs under Commodore 64 Business Reviews.

BUSICALC, $69 from Skyles Electric Works. Versions for all current models. Electronic spread sheet.

SOFTWRITER, $25 from Skyles Electric Works. For expanded VIC 20 or Commodore 64 with CBM or RS232 printer.

VIC 20 EDUCATION REVIEWS

SPRINTYPER, from Mantronics Software Designs. Typing program. $5.

Documentation claims over 333,000 different sentences are possible. All are short enough to fit in one VIC screen line - a good idea. When typing a sentence, if you make a mistake, a warning tone sounds until you press the DELETE key. When completed, program shows elapsed time and compares it to your previous times. Very well done and documentation was adequate. Recommended for building typing skills.-JL

TOUCH TYPING TUTOR, cassette from Taylormade Software.

REVIEW #1: Typing program designed for the beginning typist. In the first program (LESSONS), 19 exercises encourage you to use the correct fingers to manipulate the keys. The second program (PRACTICE) asks you to type "pseudo-words" (random groups of letters), verifies your accuracy and displays typing speed. In the last program (TEXT), you type words and groups of words. You progress at your own speed - nice!. Documentation was more than adequate. Recommended for persons who want to quit hunting and pecking.-JL

REVIEW #2: This well-documented package is the only program I have seen for the VIC to date which could actually teach someone (me) how to touch type. It does more than simply generate random sentences and time your performance. It contains 4 separate programs: In the **first, and most fascinating, program,** the screen displays the keyboard plus 50 individual letters for you to type, one at a time, followed by an accuracy score. The **second and third programs** present either random letters or phrases for you to copy (without correcting mistakes), times your performance, and calculates errors. One minor flaw in the last program shows correct entries in blue and errors in black -- rather hard to distinguish on black and white TVs. Throw away your copy of TYPING TUTOR or SPRINTYPER and get this program if you really want to learn touch typing.-BMD

VIC 20 GAME REVIEWS

BONZO, $20 cassette from DES. Needs 8K expander. Joystick optional.

Unquestionably the best cassette game I've seen for VIC. Even my wife, who's not "into" games, loves BONZO. Akin to APPLE PANIC, your man (Bonzo) must roam through 7 stories to collect point blocks while two guards try to trap you. Block values increase and one guard is added at each of 3 levels. The game is truly addictive. I don't know what makes it so appealing --excellent and cute hi-res graphics, superb use of color and sound, smooth play action? BONZO is my new standard by which I measure other VIC games. On a scale of 1-10, unquestionably a 10! Minor complaints - there are no instructions (not really needed), you cannot use the joystick if you leave the play button down on the recorder, and the programmer needs some spelling lessons. A steal at $20.-BMD

CHOPLIFTER Update, from Creative Software.

A truly marvelous game for VIC - the best I've seen since OMEGA RACE.-KRP

DEFENDER ON TRI, $13 by Nufekop. Requires 3K expansion RAM and joystick.

Object...is to rescue a human from an alien planet and get your ship safely back to your home base. This requires that you successfully travel through 4 screens of obstacles and hazards...[in] a time limit. Add to your time left by picking up treasures along the way. This game is a real challenge the first few times it is played, but [then] the biggest challenge is controlling the joystick skillfully enough to avoid hitting a wall. The game offers imaginative graphics... I would recommend this program...-Steve Garmon (Hardcopy)

LASER COMMAND, cassette from DES. For any VIC.

This is a slight variation on MISSILE COMMAND games. You defend a few cities from nuclear destruction with an invader's style tank that flies in 4 directions, but only shoots up. The aggressor has 3 types of missiles that approach the targets at different angles and speeds. Excellent colors, and the mushroom cloud when you lose a city is a vivid reminder of a more real world. Despite my dislike of nuclear war being treated as a game, I found the play action reasonably decent and the instructions good. Loads as 3 parts, which takes a while.-JS

VIC 20 HAM RADIO REVIEWS

MORSE CODE TRAINER, $20 from Taylormade Software. Cassette. Protected.

A random code generator for the 4K VIC to help amateur radio operators improve their code speed. Word per minute rate adjustable to 35 wpm. User-composed practice messages up to 50 characters or random generation of six letters, fourteen letters, all letters, or all letters, numbers and punctuation symbols. Menu driven with simple but understandable instruction sheet. Accurate code character formation with pleasing tone. The ability to increase the character speed without increasing the word per minute rate is a good feature. Could be used by those who don't know morse code, but lacks instruction for them. Possibly priced a bit high due to the small potential market, but a cheap price to pay if you need a random code generator. Recommended.-Clark L. Stewart

VIC 20 HARDWARE REVIEWS

CARDBOARD/3s, motherboard, $40 from Cardco. Lifetime full guarantee!

A simple but complete 3-slot cartridge holder for VIC's expansion port. More complete (and $10 more costly) than the earlier model 3, reviewed last issue. The new model now includes both individual switches for each slot and a reset button. It looks well-made, and includes such niceties as gold-plated contacts for VIC's expansion connector. If 3 slots are enough, and you don't need a covered box, this model should meet your needs. Considering the value of a lifetime guarantee, I doubt you'll find a better buy.-JS

DATASPAN-20, $53 kit of $83 assembled from Digital Interace Systems Co.

This board can take you from 5K to 40K instantly (you supply the cartridges). It includes 5 hi-tech, on board, integrated circuits that fully buffer, isolate and protect your VIC. It accesses 5 cartridges with a rotary switch to easily add and combine memory, VICMON, EPROM's, etc. It has a master reset button, write-over protection switch, overload protection fuse, external power supply jack, and gold plated contacts. Caution: make sure you have plenty of room behind your VIC as this unit is about as long as the VIC is wide.-John Walker (Hardcopy)

V23-CT EXPANSION MOTHERBOARD, about $50 from PTI.

Compared to Cardco's, PTI has larger, separate switches and more space between cardslots. However, it's also 2" longer and 1" wider and lacks a reset button. On balance, because of my daughter's age (9), I prefer the PTI over the Cardco because of its more easily used switches.-Keith Olson

See reviews of the following products under Commodore 64 Hardware Reviews.

CARDETTE/1, $40 from Cardco. Cassette interface for all models.
CARD/?, $79 from Cardco. Centronics parallel printer interface.
CARDRITER/1, $40 from Cardco. Light pen.
CR-5500 MONITOR, $129 from Comrex. TV monitor.
CT-7711 7" COLOR MONITOR, from Panasonic. TV monitor.
STICK STAND, from K-Byte. Joystick.
SMITH-CORONA TP-1 PRINTER, from Smith Corona dealers.
SMITH-CORONA TYPETRONIC TYPEWRITER and Supercord interface, about $880 from Smith-Corona dealers. For 64 and VIC.

VIC 20 LANGUAGE REVIEWS

LOGO, from Commodore.
See preliminary review under Commodore 64 Language Reviews.

TURTLE GRAPHICS Update, $40 by Human Engineered Software.
This cartridge plugs into the expansion connector of the VIC. Written mostly in BASIC and, therefore, is fairly slow. I purchased...[it] to introduce my 5 year old daughter to computers...as a first computer language for children.... Comes with an adequate users guide. This cartridge has several disappointments.... Instead of dot graphics, it uses entire character locations to display each point that the turtle draws, so that only very simple pictures can be drawn using the turtle. Also, it is s-l-o-w.-Steve Garmon (Hardcopy)

VIC-FORTH Update, from HES:
Gila Newsletter lists these features for the VIC 20 FORTH cartridge: standard Fig-Forth (nearly 400 words); 3K RAM in the cartridge; works in any numeric base; compact, compiled, and very fast; Text Editor and Macro Assembler included; may be coded in assembler; supports cassette and printer I/O; and works with all memory sizes.

VIC 20 MAGAZINE REVIEWS

JOURNAL/20, $12 per year, from Mike Apsey.
Bi-weekly VIC newsletter, via first class mail. An excellent brief resource for VIC owners. It reminds me of the first Midnite's, although not as "off the wall" as we were. [What do you mean "were"!-ED] Apsey actually uses the VIC to print his magazine, currently via WORDCRAFT 20 and a Smith Corona TP-1 printer. He considered accepting ads, but decided not to, and adds, "excepting special offers, and unusually good recommendations, JOURNAL/20 will be ALL NEWS." Parts of each issue are for the utter newcomer, but other sections will challenge those who've already digested the Programmer's Reference Guide. Sample gems:

"To use the VIC-1541 with the VIC-20, you must enter...OPEN 15,8,15,"UI-"

"The [Atari] paddles...had 1 mega-ohm variable resistors...the change consists of adding a 820K 1/4 watt resistor across the active terminals..." (This ups the "live" area of the Atari paddle on a VIC from 120 degrees to 180 degrees.) Highly recommended.-JS

VIXEL, Volume 3, $13 from Code Works.
Includes 3 games: WARP, FIFTEEN, and RAIL. In WARP, you pilot a spaceship through a tunnel (with 3 levels of difficulty), but the ship could not turn left, making the game VERY difficult to play. In FIFTEEN you arrange numbered tiles in the correct order. It requires joystick, but would be much better using the keyboard, because it was very hard to maneuver the files. RAIL requires 3K or 8K expansion. You direct up to 8 white trains into a train depot by controlling 12 switches and avoiding train crashes. RAIL alone is worth the price. I was very impressed with all the documentation.-JL

VIC 20 MODEM REVIEWS

TERMINAL-40, by Midwest Micro Associates

REVIEW #1: A machine language program that transforms the VIC-20 with an 8K expander into a 40-column RS-232 terminal. All features that can possibly be changed such as baud rate, number of stop bits, and full or half duplex, are selectable. The forty column display is done entirely in software and is unbelievable. The author of this program had a good imagination when it came to designing the ASCII character set in blocks of 3 dots by 6 dots.... To say the least, I'm impressed! The program also offers smooth scrolling of the display and supports output to the VIC-1515 printer.... As far as I'm concerned, TERMINAL-40 will be my standard for judging the value of any future programs for the VIC.-Steve Garmon (Hardcopy)

REVIEW #2: TERMINAL-40 is a good program. I have been using it to communicate to a DEC VAX 11/780 SuperMini and I find it works very nicely. I have added my own modifications, such as a nicer character set, lower case, and a bell character.-Mark Niggemann

VIC 20 UTILITY REVIEWS

SUPER VIC-KIT, diskette from Mantronics Software Designs.

Diskette based BASIC programmer's utility package, like Commodore's PROGRAMMER'S AID cartridge. Adds 25 commands, including BREAK, CATALOG, DLOAD, DSAVE, HEADER and LIST. Some make disk handling easier, while others make entering BASIC code more efficient. Also includes machine language monitor, which is easily accessed from BASIC. Highly recommended for frustrated BASIC porgrammers. Disk commands are so much friendlier than the VIC's. A winner.-JL

VIC RABBIT, $40 from Eastern House Software. High speed cassette driver.

Works smoothly and efficiently. It has simple commands. It's not only time saving, it also has the advantage of giving easier storage. Has been problem-free, except doesn't entirely like Commodore's wordprocessor program. Includes pass-through connector and empty ROM socket. Lacks cartridge shell.-JS

VICTREE, $90 from Skyles Electric Works. Versions for VIC and 64.

See review of 64 version under Commodore 64 Utility Reviews.

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THE PAPER ARTICLES

Feature Article:
RALPH WRITES

State of the Micro

by Ralph Bressler

Various people in the political arena have finished delivering their "State of the ..." messages, which review the conditions of a certain part of the country and propose some solutions to specific problems. In the same spirit, this article comments on the "State of the microcomputer hardware and software market". Both of these markets are presently in a state of turmoil more pronounced than at any time since micros first came on the scene. As usual, hardware changes are leading the way, but there are also some impressive software innovations.

The number of new hardware products announced at the various computer shows just this year is enough to confuse anyone. Even the most dedicated market analyst might hesitate to predict the future concerning this vast horde of new computers, printers, plotters, memory expansions and voice synthesizers. What is equally amazing is the ever-widening price range ($59 to $10,000 at the moment). Some new computers represent innovations, particularly in ergonomics, while others are simply copies of previous designs or just repackaged. No matter how improved a machine is over the one it emulates, it is still a copy and represents little real innovation. Since the Osborne 1, every company feels it has to have a portable. Some are smaller, have larger screens, or different "free" software, but show little change in the basic design. If being copied is a form of flattery, then Apple and IBM should feel honored with the number of "knock-offs." Even Apple copied Apple when they released the Apple II E!

Many manufacturers seem content to rework old ideas, taking a conservative "wait and see" approach. BASIC is still the standard language supplied on most micros, even though it is slow and awkward for all but the beginning user. CP/M is still the most popular operating system, not because it's the best, but because no one wants to break from the pack, even for a better system. A great idea supported by only one company soon withers and dies, making companies reluctant to incorporate new ideas into products.

What concerns me most is that machines are being produced and marketed with "bugs" which require later "fixes". Production of the Apple III was halted for some time to redesign and repackage some parts. The IBM PC can't do some simple math operations correctly, although IBM doesn't show much concern. Commodore's own 64 has had at least one Kernal change which affects many programs. Even Commodore's own public domain programs are affected. How many more changes will be made in the machines on today's market? In addition, only the slightest effort is being made to standardize program recording methods, video displays and the like. This is not surprising, since few other markets do this, but couldn't just a few things be the same from machine to machine? Ford doors may not fit Chevy cars, but at least the steering wheel is always on the left side! Such is the state of hardware today.

One bright note is that the gap between hardware capabilities and new software programs that use the sophisticated abilities of the machines is shrinking. New software programs are finally accessing the built-in functions of such versatile hardware. The pressures of competition have resulted in better quality products at lower prices. Where there was once one word processing program, there are now a six or seven good ones. More programs are written in machine language for increased speed and efficiency. Even educational software is beginning to go beyond simple drill and practice; many programs now "teach" creativity, critical thinking and problem solving. . Results of research on how kids learn from computers are being incorporated into new packages like BANK STREET WRITER. The numbers of bad programs that sell well are rapidly diminishing. The biggest problem now is choosing the program that best fits your own personal need. Even this may become easier as companies move from "no warranty is expressed or implied" to "full refund within 10 days". People who purchase new brands and models should be sure that they are shown programs for the machine they buy that do what they want to do. Promises aren't nearly as good as watching the programs run. The state of the art of programming seems to be improving.

Every time someone tells me that they just bought a microcomputer, I wince just a little. This is particularly true when I talk to business people. As the conversation continues, it always strays to why they bought the machine. Too many times the answer is something like, "Everybody else has one!" The reasons for buying the brand they chose are even more nebulous. They heard from a friend that this was a good brand, the salesman in the store liked it, or they read an article which favored that model. When the exchange reaches the part about what they will use the machine for, the software they purchased and the training they have, I begin to shudder. For some reason, people will rush out to spend from $500 to several thousand dollars on a computer with few second thoughts. These same people might spend weeks choosing a new car or a typewriter or getting the best price for a vacation package. Perhaps they are overwhelmed by conflicting reports and the enormous number of models, options and additional equipment. Many buyers fail to understand that the best machine cannot function without the specific software they require for the job they want to do. This is the state of some buyers in today's market.

Between the buyer and the products are a sea of confusing articles, advertisements and salesmen. Advertisements and salespeople act as adversaries in the quest for the most cost effective system for the buyer's purpose. The customers who throw themselves at the feet of a salesperson, crying, "Please, help me!" deserve what they get. Why should computer salespeople be any more honest or willing to see you get the best deal than people who sell other consumer goods? However, purchasing a system from a local dealer is certainly better than buying one through the mail. Being able to ask questions in person when things go wrong is worth the extra money. An intelligent buyer needs to carefully read articles and reviews and decide on the impartiality of each source. Armed with some knowledge, the potential buyer can canvas local stores for the best deal. Other sources of information may include informed friends, users groups and their newsletters, and local schools and colleges. I teach in a public high school and although I do not feel qualified to give advice to all buyers, I can help them some, and at least define their needs. The need for adult computer literacy and training courses is increasing beyond the ability of the educational system to handle it, as more and more people take advantage of the low cost of home and small business computers.

The state of the microcomputer market today consists of many willing buyers confronted with many choices of hardware and software. One of the biggest immediate needs of these people is clear, accurate information which prepares them to make intelligent choices about their purchases. Hardware and software will continue to change, but well-informed buyers will be able to define their needs and seek products which get the job done.

Feature Article:
BEYOND BASIC
(USING THE MONITOR)

Long Lines on a Commodore

by Thomas Henry

An unusual quirk of Commodore computers is the discrepancy in size between screen lines and BASIC lines. For example, on a CBM 8032 the maximum length program line that you can enter from the keyboard is eighty characters. The same is true for a forty column PET, since you may wrap the line around once (two times forty equals eighty). Now the strange thing is, a legal BASIC line can actually be up to 256 bytes long! For example, the following is a perfectly good program line, as far as the BASIC interpreter is concerned:

```
20 ONKGOSUB1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,
26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51
,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76
```

This line has 226 characters (excluding the line number), but since ON and GOSUB are tokenized before being stored, the actual byte count in memory is 221. Then, still thinking in terms of a line stored in memory, we must add on two more bytes for the forward link address, two more for the line number and finally one more for the concluding 0 byte. In the end, the total length in memory is 226 bytes. This line is legal as far as BASIC is concerned. When the interpreter fetches line 20, it will be executed just like any other line. The problem is, how do we get it into memory?

BASIC lines are actually strings of bytes in memory. Normally the BASIC in ROM inputs a line and converts it to a string of bytes which the interpreter will understand. To enter long lines, however, we must input the bytes directly through the machine language monitor. Let's try an example.

The first step is to enter the program, minus the desired long line. For our test, enter this:

```
        10 INPUTK
        30 GOTO10
```

Notice that we only entered normal lines. We'll enter a long line at line 20. Now estimate the length of the long line, including the link address, line number and concluding zero byte. As we saw above, our example line is 226 bytes long. Let's call it 240 bytes, just to leave a margin of safety. We can always eliminate extra bytes later on.

Next we'll enter some dummy lines whose only purpose is to create a workspace for our long line. Type in line number 20. Fill this line with 60 commas and press RETURN to enter the line. Now duplicate this line, thus creating lines 21, 11 and 23. LIST the program and you should see the two normal lines at 10 and 30. Between these are four lines each containing 60 commas, for a total of 240 commas, to occupy about 240 bytes total in memory. These dummy bytes are where we will enter the long line.

At this point enter the monitor, ie. via SYS4. Use the .M command to create a hex dump of memory locations $0400 to $04BB, ($0800+ on the 64, $1000 or $1200 on VIC.) You should see a large number of $2C's, which represent all the dummy commas. Locate the first one. If you typed the example exactly as given (no extra spaces) this should be at $040C. The two bytes before the first $2C hold the line number. They should be $14 and $00, which is $0014 (20 in decimal). Two bytes before these should be the link address, which points to the next line (21) in memory. We'll come back to this in a moment.

We'll create our long line right on top of these reserved spaces. Position the cursor on top of the first $2C at $040C. Type in $91, which is the token for the BASIC command "ON". Space over one byte and type in $4B, which is the ASCII value of "K" (the variable). Space over again and type in $8D which is the token for "GOSUB". See how easy this is? So far we have this much of the line entered into memory: 20 ONKGOSUB

Now enter all those line numbers referred to by the GOSUB. We'll do this in ASCII. Though this may sound difficult, there is a convenient relationship between a digit and its ASCII code: "1" is $31, "2" is $32, "3" is $33 and so on. Still looking at the hex dump, space over one more byte. Enter $31 and space over again. Now we need a comma; since one's already there, space over again. Now enter a $32 for the number 2. Space over again, leaving the $2C; then enter $33. Continue like this until you have entered the entire batch of numbers. If you run out of screen space, use the M command to display another block of bytes. There may be several places where you will have to manually enter a $2C. Don't be bothered by two digit numbers. The number 61 would be represented by two consecutive ASCII characters, such as $36 and $31.

When you finish entering the numbers, enter a single zero byte. This is BASIC's end-of-line indicator. You should now have some extra bytes left over between what we just did and whatever line comes next. To get rid of the extra bytes, cursor past the next two bytes which form the link address for the next line. Your cursor is now at the proper spot to insert a new line number. Since line number 21, 22 and 23 have been replaced by what we did earlier, let's use one. Enter the hex equivalent of line number 21, which is $15 and $00.

Currently we should have lines 10, 20, 21 and 30 in memory. Line 10 and 30 are unchanged, line number 20 is the new long line, and line number 21 is a line containing the extra commas left over. You will eventually eliminate it, but first consider the following. We have indeed created the desired lines. Unfortunately, the link pointers are wrong as a result. You could compute new ones, but there is an easier way.

To do this using an extended monitor, dump some unused memory, say from $7000 to 7008. Enter the following:

```
.: 7000 20 B6 B4 00
```

In terms of 6502 mnemonics, this routine represents:

```
JSR $B4B6
BRK
```

Now execute this routine with the G command, thus:

```
.G 7000
```

In a flash, you'll return to the monitor. What has happened? Your PET has just recalculated all link addresses automatically! The routine at $B4B6 does this free of charge. To return to BASIC, just type X and press RETURN.

Eliminate line 21 by typing "21" and pressing RETURN. Next, type CLR to clean up the system pointers. If you type LIST, you will see the desired program, consisting of lines 10, 20 and 30. Look at the way line 20 wraps around the screen! Defy any of your friends to guess how you did that; then ask them to edit the line (the only way to edit it properly is through the monitor)!

This procedure takes only a few minutes, and allows you to create any BASIC line that you want, up to 256 bytes long. Although the procedure described above was designed for a CBM 8032 with 4.0 ROMs, it should work on any Commodore computer. PET Users with upgrade 2.0 ROMs only need to change the relink address to $C442. Those with old 1.0 PETs may use $C433. On the 64 the necessary routine is at $A533. Both 64 and VIC users will need to load a monitor program. VIC users must also substitute $C533 for the relink routine, and remember that VIC input lines are actually 88 characters long.

Feature Article:
COMMODORE 64 CONVERSIONS

Some PET To Commodore 64 Conversions For The Complete Novice

by Herb Gross

Many programs written in various PET BASICs will run on the Commodore 64 unchanged...if you are extremely lucky! I haven't been. In a never-ending quest for software for my 9-year-old son for our (his) Commodore 64 while dealer's shelves are bare, I have made several PET programs work on the 64. Here's how...

POKE not, lest ye be poked!

If you see a POKE or PEEK listing with the numbers before the comma in a range from 32768 to 33767, be glad. Just subtract 31744 and plug in the answer. Screen memory on PETs begins at 32768; the 64 goes from 1024 to 2023. When you subtract 31744 it works. The number after the comma usually stays the same.

For other POKEs....lots of luck. Try the program without them. If the program won't run without the POKE, your best bet is to hunt down a copy of the Commodore 64 Reference Guide or a PET programming guide and a 64 memory map to figure out an equivalent.

Some Shifty Characters

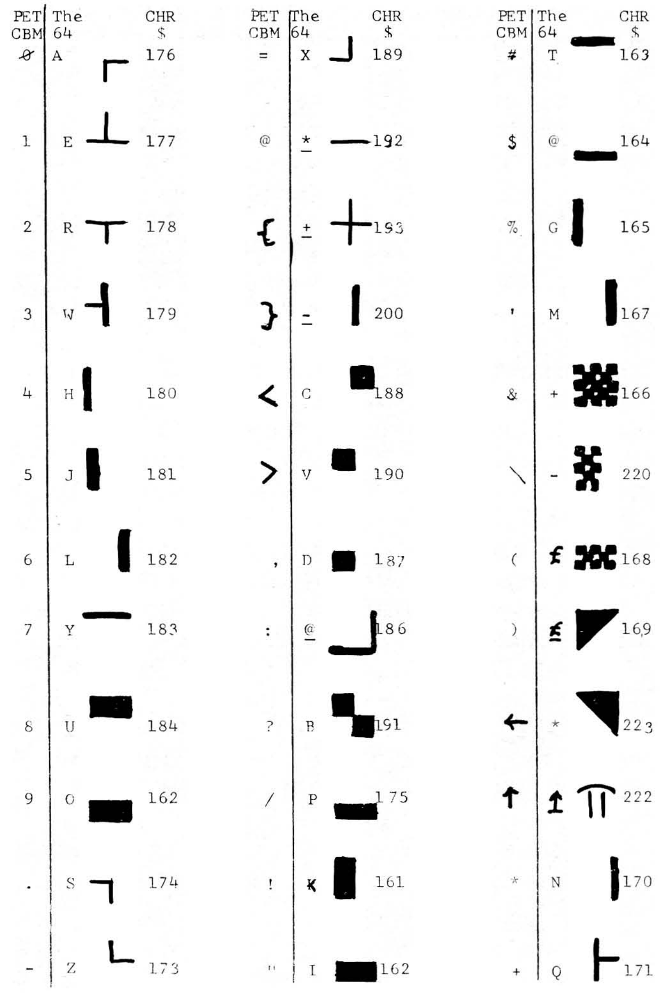
The keyboard on the 64 has some significant differences from PET keyboards, especially the keyboard location of shifted graphic characters. Usually, listing conventions use an underlined letter, number, or symbol to indicate that you are to hold down the shift key while pressing that symbol. If you see both a shifted 4 and a shifted $, in a PET listing, what do you do? They do not stand for the same thing. The attached table show you how to convert PET listings with shifted numbers and symbols. Shifted letters work without change.

Swatting a bug

There is a secret used in successful debugging, hidden in the cover of this magazine. It works best when you are up half the night trying to RUN a program. STOP whatever you're doing, Clear Screen, enter PRINT "GOTO BED", and sleep on it. If you are truly dedicated, your mistake will become clear in your dreams. If not, you'll still find the bug faster after a good night's sleep. Remember, the more bleary eyed you are, the more a colon looks like a semicolon!

Conversion Of PET/CBM Shifted Graphic Symbols To Commodore 64

Note! Use Commodore (C=) key on 64 unless underlined___ then use shift key.



PET CBM	The 64	CHR $	PET CBM	The 64	CHR $	PET CBM	The 64	CHR $
0	A	176	=	X	189	#	T	163
1	E	177	@	*̲	192	$	@	164
2	R	178	{	±̲	193	%	G	165
3	W	179	}	-̲	200	'	M	167
4	H	180	<	C	188	&	+	166
5	J	181	>	V	190	\	-	220
6	L	182	,	D	187	(	£	168
7	Y	183	:	@̲	186	)	£̲	169
8	U	184	?	B	191	←	*	223
9	O	162	/	P	175	↑	↑̲	222
.	S	174	!	K	161	*	N	170
-	Z	173	"	I	162	+	Q	171

Feature Article:
HARDWARE

Commodore 64 Reset Switch

by Jim Halsey

You can implement either a 'soft', or 'hard' reset switch, or both for a Commodore 64.

HARD RESET

The easiest way to install the 'hard' reset is via an edge connector plugged into the user port. To do this, you solder a diode such as a 1N4001 in series with a momentary contact switch, between pin 3 (reset) and pin 12 (ground) of the connector. The banded (cathode) end of the diode should go to pin 12 of the connector. The most logical way to mount the diode is to solder it to the switch and have your wires attached to the free end of the diode going to the connector. The other way is to connect a mini-clip to the end of the wire that needs to be connected to pin 40 of the 6510 microprocessor chip, and clip directly to the pin. These user port pin connections are connected to traces, with circuit pads, to which you can also solder a lead or wire (which will void your warranty). Make sure you use the diagram on page 143 of your Commodore 64 User's Guide, to find the correct pinout. This diagram is oriented as if you are facing the back of the computer. Some of you may ask, "Why do you need the diode in the line, because I can get a 'reset' action without the diode ?" The diode is recommended, because each time you activate the switch, and during multiple 'make' and 'break' contacts of the switch contacts (bounce), you force the reset line of the devices (PIA's, VIA's, CPU's) to a near ground potential. If you have the diode in the line, it gives less drastic 'loading' action to these devices. This supports the concept of keeping a computer running continuously, because the on-off surges are the most damaging to electronics parts (a practice used with most large minicomputers and mainframe computers).

SOFT RESET:

The 'soft' reset is a little more tricky to implement. The processor must recognize a set, and reset function. The easiest place to find this type of signal is to tie into one of the computer's address lines, which are continuously changing from 'lo' to 'hi' (especially the lower lines). It's best to find a 'buffered' or isolated line for use with a 'soft' reset. The only available places on the Commodore 64 which are close to the user port opening, however, are the system ROM chips. If you attach a wire to pin 1 of one of these devices, you'll have a wire attached to the A7 address line. This will work nicely for your reset needs, as well as give you the isolation between the switch and the device you connect to the switch. You can solder the end opposite the banded end of another diode to one of the leads on the switch, and then solder a wire to the banded end. You can then clip the other end of this wire on to pin 1 of U3, U4, or U5 with a mini-clip. Then solder a wire to the other contact of the switch, and clip that lead to ground (the same place as the other switch).

SWITCH LOCATION

The switch, or switches can be physically located on the left side of the computer (oriented as if you are facing the front of the computer), and mounted with double-sided carpet or cushioned tape. Make sure you attach the switch to the bottom of the case, with the wires passing through the user port opening, so you can remove the keyboard section, if you should so desire.

Feature Article:
HARDWARE

Spikes--Hash--Surges--Brownouts:
EMI FILTERING

by Robert E. Mergy, Sr.
Better Solutions
P.O. Box 581
Santa Teresa, NM 88008

The other evening at our "PET Users" club meeting one of the members remarked that he had just paid $85 to have a couple of RAMs replaced in his 8K PET. I got inquisitive and found out he also has problems with running programs and losing memory. This is a classic case of living in an area where there are a lot of spikes and hash on the power lines. Other members said that they had never had this problem. They are lucky, so far.

What causes spikes, hash, surges and brownouts? The answer ranges from the power plant and the transmission lines, to your neighbor next door. Motors, electric welders or even a number of refrigerators on the same block all turning on or off simultaneously (it is rare, but could happen) can cause spikes and dips and surges on the power line.

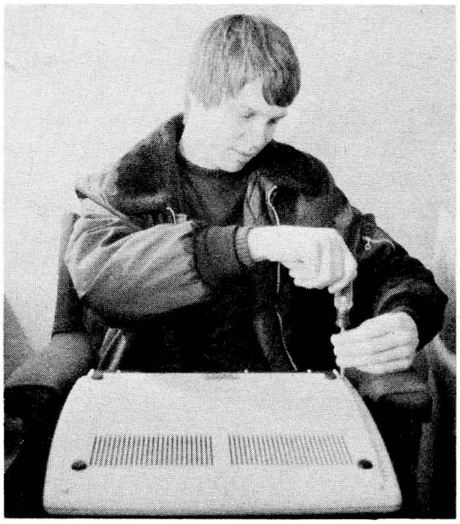
SPIKES

Spikes are a very serious problem to the computer, because the circuit is designed to operate on 5VDC and most TTL devices are rated at 5.5VDC max. Going into your computer is 115VAC, which is transformed to about 10VAC, then rectified and filtered to create an 8 volt D.C. rail for the on board regulators, which require a minimum of about 2 volts drop across them to stay in regulation. The on board regulators have very good load and line regulation at 60Hz, but at 20 KHz roll off sharply. At 20 KHz or above this frequency, the regulators pass on through to the circuit whatever is on the input. Filter capacitors on the system also help; at low levels they can absorb most of the spikes (depending on the C and the frequency).

BROWNOUTS

To handle brownout or line drops, computer power supplies have a hold-over time. Although not specifed, most microcomputer manufacturers generally design into the power supply around 10m sec. of hold-over time. (Apple has a switching type regulator that could be 30 to 50m sec.). You can increase the hold-over of your computer by increasing the size of the filter capacitors in the power supply. Let a knowedgable technician do this for you, to avoid other problems.

One of the best ways to handle spikes is to cancel them before they enter the system. There are many filters on the market, ranging from $50 to $100, that promise to cure the woes of spikes, hash and surges, but to what extent? Have you seen this advertised?



[Assuming you haven't, Bob went on to describe an effective "homebrew" EMI filter he has built. Since this issue has to be at the printer's in an hour and I still can't quite figure out all his instructions, anyone who feels able to wire a transformer from scratch, and knows what a pyramid wrap is, may contact Bob at the address above and request a copy of the original article. Naturally, you should include a stamped self-addressed envelope if you expect a reply, and he may want something for the service of copying the article. Sorry Bob, and thanks for warning us about the dangers.-ED]

Feature Article:
MATHEMATICS APPLICATION

Multi-Digit Multiplication

by Zoltan Szepesi

Summary: This multi-digit multiplication program for PET is not only a learning exercise in solving specific problems in PET BASIC, but also provides greater precision than the 9 digits standard on PET. It is much faster than two similar programs from Compute!.

A program, "Extended Multiplication with the TI-58", by M. E. Manwaring (Byte, November 1979), multiplies two integer numbers on a TI calculator. The maximum number of digits in the product can be 90, and the execution time for the maximum number of digits (23 six digit groups times 22 six digit groups) is about 20 minutes. **Compute!** (March 1982) published a program for PET, by G. H. Watson, called "Infinite Precision Multiply", but it cannot handle more than 75 digit numbers and is slower than the TI program! Therefore, I wrote a BASIC program for the PET, using Manwaring's algorithm. In PET BASIC the program is more than ten times faster than on the TI calculator. Besides faster speed, the PET has two other advantages. Entry of numbers is easier and the printout is a continuous string. Execution times are still long with a high number of digits, but a machine language subroutine could speed it.

Several problems were solved in writing this program. First, the number of digits that can be entered using a normal INPUT statement is less than 80. Since a string variable can have up to 255 characters, one can input 77 digits three successive times, then another 24 digits, and concatenate them into one 255 character string. This is inconvenient when the digits do not need all four INPUT statements. A more time-consuming method enters two numbers as four digit integers. With this method one could multiply any number of digits, limited only by free memory. My preferred method, suggested by Judy Bogart of Commodore, is to use the GET command. I modified Gary Greenburg's program "PET GET with Flashing Cursor" (Compute! Issue 4), by leaving out the flashing cursor (which distracts some people) and using a steady underline (because you can type in the numbers in faster), and entered it as a subroutine in lines 305 to 380.

After the strings are entered, statememts 80 and 120 must be separated into four digit groups. Since the PET has 9 digit precision, the maximum number of digits in a group cannot be more than four which gives a product with 7 or 8 digits. Working with 5 digit groups would have a speed advantage, but could generate errors when the product is 10 digits. The dimension statement in line 85 shows a larger number of groups than is needed for A( ) and B( ). This is necessary when the multiplicand has less than 4 digits. In this case, the dimension would be A(1) and the program would stop at line 105. With a dimension of A(M+2), instead of A(M+1), the program works properly.

The four digit groups are now multiplied by the algorithm in lines 125-165. This is similar to the method used on paper, but the computer multiplies 4 digits at a time and carries the 10000's digit to the next multiplication. The product D(I+J) is also presented in a four digit group. Since leading zeroes are suppressed in PET BASIC, the program must restore them if needed. Statements 170 to 250 convert the four digit groups to string characters, restore missing zeroes and print the concatenated four character strings as the product. Lines 70 and 255 calculate and output the execution time.

```
 5 PRINT "(home)(down)        EXTENDED MULTIPLICATION."
 10 PRINT "        ------------------------"
 15 PRINT "          BY ZOLTAN SZEPESI"
 20 W=0:PRINT "(down)**DO YOU WANT HARD COPY (Y/N)"
 25 GET X$:IF X$="" THEN 25
 30 IF X$="Y" THEN W=1:GOTO 40
 35 IF X$<>"N" THEN 25
 40 PRINT "(down)**TYPE THE MULTIPLICAND & THE":? "          MULTIPLIER."
 45 PRINT "**EACH CAN HAVE 255 DIGITS MAXIMUM."
 50 PRINT:PRINT "*MULTIPLICAND=":GOSUB 305:A$=Z1$
 55 IF W=1 THEN OPEN 1,4:PRINT#1,CHR$(1);"MULTIPLICAND=";CHR$(13);A$
 60 PRINT:PRINT "*MULTIPLIER=":GOSUB 305:B$=Z1$
 65 IF W=1 THEN PRINT#1,CHR$(1);"MULTIPLIER=";CHR$(13);B$
 70 T1=TI:PRINT:PRINT "                 (rvs)WORKING"
 75 LA=LEN(A$):LB=LEN(B$)
 80 M=INT(LA/4):N=INT(LB/4)
 85 DIM A(M+2),B(N+2),C1(M+1),D(M+N+2),D$(M+N+2)
 90 FOR I=0 TO M+N+2:D(I)=0:NEXT I:FOR J=0 TO M+1:C1(J)=0:NEXT J
 95 Q=LA-4*M:IF Q>0 THEN M=M+1:A(1)=VAL(LEFT$(A$,Q)):X=1:GOTO 105
 100 A(1)=VAL(LEFT$(A$,4)):X=0
 105 FOR I=2 TO M:A(I)=VAL(MID$(A$,(I-1-X)*4+1+Q,4)):NEXT I
 110 R=LB-4*N:IF R>0 THEN N=N+1:B(1)=VAL(LEFT$(B$,R)):X=1:GOTO 120
 115 B(1)=VAL(LEFT$(B$,4)):X=0
 120 FOR J=2 TO N:B(J)=VAL(MID$(B$,(J-1-X)*4+1+R,4)):NEXT J
 125 FOR I=N TO 1 STEP -1:FOR J=M TO 1 STEP -1
 135 : : C=A(J)*B(I)+D(I+J)
 140 : : C1(J-1)=INT(C/1E4)
 145 : : C1(J)=C-C1(J-1)*1E4
 150 : : D(I+J)=C1(J)
 155 : : D(I+J-1)=D(I+J-1)+C1(J-1)
 165 NEXT J,I
 170 PRINT:PRINT "PRODUCT=":IF W=1 THEN PRINT#1,CHR$(1);"PRODUCT="
 175 D$(1)=STR$(D(1)):L1=LEN(D$(1))-1:D1$=RIGHT$(D$(1),L1)
 180 IF D(1)<>0 THEN PRINT D1$;:IF W=1 THEN PRINT#1,D1$;
 185 IF D(1)<>0 THEN K=2:GOTO 205
 190 D$(2)=STR$(D(2)):L2=LEN(D$(2))-1:D2$=RIGHT$(D$(2),L2)
 195 PRINT D2$;:IF W=1 THEN PRINT#1,D2$;
 200 K=3:IF M+N<3 GOTO 255
 205 FOR I=K TO M+N:D$(I)=STR$(D(I)):LI=LEN(D$(I))
 210 : IF LI=4 THEN D$(I)=RIGHT$(D$(I),3):PRINT  "0";:IF W=1 THEN PRINT#1,  "0";
 215 : IF LI=4 THEN 245
 220 : IF LI=3 THEN D$(I)=RIGHT$(D$(I),2):PRINT "00";:IF W=1 THEN PRINT#1, "00";
 225 : IF LI=3 THEN 245
 230 : IF LI=2 THEN D$(I)=RIGHT$(D$(I),1):PRINT"000";:IF W=1 THEN PRINT#1,"000";
 235 : IF LI=2 THEN 245
 240 : D$(I)=RIGHT$(D$(I),4)
 245 : PRINT D$(I);:IF W=1 THEN PRINT#1,D$(I);
 250 NEXT I
 255 PRINT:TE=INT(100*(TI-T1)/60+.5)/100:PRINT "(down)EXECUTION TIME:"TE"SEC."
 260 PRINT TAB(17);"*****"
 265 IF W=1 THEN PRINT#1,CHR$(13);CHR$(13);"EXECUTION TIME:";
 270 IF W=1 THEN PRINT#1,TE;"SEC.";CHR$(13);TAB(35)"*****":CLOSE 1
 275 PRINT "(down)DO YOU WANT TO CONTINUE (Y/N)?"
 280 GET X$:IF X$="" THEN 280
 285 IF X$="Y" AND W=1 THEN PRINT"(clr)":CLR:W=1:GOTO 50
 290 IF X$="Y" THEN PRINT "(clr)":CLR: GOTO 50
 295 IF X$<>"N" THEN 280
 300 END
```

Feature Article:
BASIC AID/
PRINTER APPLICATION

A Patch for BASIC AID

by F. Arthur Cochrane

If you use BASIC-AID and your ASCII printer needs a line feed sent with a carriage return, then these instructions are for you.

1. Load in BASIC-AID for an ASCII printer.

2. Go to the monitor. Display memory as follows:

```
0CA2  A9  0D  20  9E  F1 (BASIC 4.0)
                  6F     (BASIC 2.0)
0CD5  A9  0D  20  9E  F1 (BASIC 4.0)
                  6F     (BASIC 2.0)
     LDA #$0D JSR send
```

This is where the carriage return is sent for the screen print. What is needed is a patch to send the carriage return and then send a line feed.

3. Fix memory as follows:

```
0CA2 and 0CD5            A9  0D  20  F8  7F  (BASIC 2.0 & 4.0)
14F8      20  9E  F1     A9  0A  4C  9E  F1  (BASIC 4.0)
              6F                     6F      (BASIC 2.0)
        JSR SEND         LDA #$0A    JMP SEND
```

4. Now save it as follows: `S "0:name",08,0401,1500`

Your BASIC-AID should now send a line feed after a carriage return to your printer for CRT and keyprint. However, this will not fix the SPOOL command unless the disk file has line feeds in it, because the disk file sends directly to the printer on a Spool.

When BASIC-AID is loaded into your machine, memory is loaded from $0401 to $14FF. Since a BASIC SYS command is at the start, a RUN can be given. The RUN command calls a mover routine to move locations $0500-$14FF to location $7000-$7FFF and then jump to $7000. BASIC-AID now initializes itself and then protects itself from BASIC by setting the top of memory at $7000. After a KILL command, BASIC-AID is still in memory and can be called at 28672. Since BASIC-AID uses 4K of memory, the FRE command will return 27645 after a NEW command.

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Feature Article:
SORTING

Insertion Sorting and Binary Searching

by Ralph Bressler

Sometimes we "oldtimers" forget there was a time when we were just learning about microcomputers. We assume that everyone has read and understood all the articles on sorting and searching techniques. This article is meant for those who missed previous articles on important techniques in BASIC programming.

INSERTION SORTING:

The tasks of sorting and searching, used in many programs, can be the slowest, most time consuming parts. How can we accomplish these tasks in the shortest possible time? Machine language subroutines would greatly increase the speed, but we may not be able to write these ourselves or follow the programs written by others. Most sorting techniques, from the "bubble sort" to "heap sort", require that the sorted information be in an array in memory at the time of sorting. If this is not possible, then some items are sorted and written to disk in separate groups, one after the other. This continues until the lists can be merged and the sorted list output. The **insertion sort** keeps the items in the order entered and creates a "key" to indicate the order in which they will be output. This means the list is always in order and will never have to be sorted. In fact, more than one key can be created and the list can be instantly accessed in one of many different orders. The data itself can be written to disk as it is entered since it will never have to be rearranged. The keys take up little space and can be kept in an array in memory, or they may be written to disk and adjusted as more information is entered, especially when using relative files.

Suppose we enter the names in the order on the left, but want an output in alphabetical order.

Entered		**Keys**		**Output**	
#	NAME	#	KEY	#	NAME
1	BRESSLER	1	4	1	ADAMS
2	CORBEN	2	1	2	BRESSLER
3	ZIGMUND	3	2	3	CORBEN
4	ADAMS	4	5	4	SIMS
5	SIMS	5	3	5	ZIGMUND

We would want to output name four first, one second, two third and so on. Our list of keys would be as shown in the middle and our output as shown on the right. If we want alphabetical order, the insertion sort would:

1. Enter a name with its related information and store it in arrays.
2. See if it is the first entry. If so, then key #1 is name one and we enter the next name in step 1.
3. Compare the name to each name in the list USING THE KEY ORDER, not the order of entry. Continue the comparison until the name is less than another name in the list. If it is never less than a name, then it goes at the end of the list. Its key will be the same as its entry position and we go back to step 1. If it is less than a name, then it must be "inserted" in the list.
4. To insert the name, first make a space for it at the point that the name was less than one in the list, by starting at the end of the list and moving all the KEYS "down" one by one until you get to the insertion position.
5. Let the key at the insertion position be equal to the number of the name just entered.

For example, follow the results of adding JAMES to the list below:

Before:

#	NAME	#	KEY
1	KELVEN	1	2
2	ADAMS	2	1
3	VERDEN	3	3

After:

#	NAME	#	KEY
1	KELVEN	1	2
2	ADAMS	2	4
3	VERDEN	3	1
4	JAMES	4	3

This technique will become clearer as you study and use the program in Figure 1. The program uses two keys, one for age and the other for name, so you can see how a list can be accessed in two orders at the same time.

BINARY SEARCH:

As the list grows, the time it takes to find the proper place for the information in the list of keys also grows. If we have a list in alphabetical order by a key and we start searching from the beginning for ADAMS, we may find that name quickly. A sequential search for the name YUTZ may slow down data entry intolerably. A better method of searching is to use the **binary search.** Most people when asked to guess a secret number from 1 to 100 will start at 50. When told the number is less than 50, they try 25 and so on until they zero in on the correct choice. A binary search of an ORDERED list is much the same. Its biggest advantage is that a list of 65000 pieces of information can be searched with only 16 comparisons. This improvement in speed may not be noticed on short lists but is dramatic as the list grows longer. To do a binary search:

1. Enter a name to be searched. Set a "lower limit" to 1 and an "upper limit" to the number of items in the list.
2. Set the "search record" to the average of the upper and lower limits.
3. Compare the name to be found with the name at the "search record" position. If they are equal, print out or act on the information and end the search.
4. See if the lower limit is greater than or equal to the upper limit. If so, the name is not in the list and you should end the search.
5. If the name to be found is less than the name at the search record then set the upper limit equal to the search record minus one. Go back to step 2.
6. If the name to be found is greater than the name at the search record then set the lower limit equal to the search record plus one. Go back to step 2.

The only trick to remember is that when using the "insertion sort" with keys, make the comparison in step 3 in the KEY ORDER, not the order in which the names were entered.

The program in Figure 1 combines these two techniques. It keeps a list of names and ages in alphabetic and descending age order by using keys. All information is held in arrays for ease of use and speed. For those of you who understand the program and have a disk drive, these keys can become relative file record numbers so that the information can reside on disk rather than in memory. Lines 100-270 dimension the variables as needed and then present a menu of choices which are self-explanatory.

The insertion sort subroutine starting at line 1000 adds a name to the list and adjusts both keys as necessary. The subroutine at line 3000 lists the information in the order kept by the two keys. Notice that N$(K1(I)) is printed, which indicates the key order, instead of N$(I) which would be the order of entry. Most of the rest of this subroutine formats the output. The subroutine at line 2000 is a binary search, as described above.

```
100 REM MAINTAIN AND SEARCH A LIST
130 DIM N$(100),K1(100),A(100),K2(100)
140 :
150 PRINT "(clr)MAINTAIN AND SEARCH"
160 PRINT "(down)(rvs)A(off)DD a NAME
170 PRINT "(down)(rvs)F(off)IND A NAME"
180 PRINT "(down)(rvs)L(off)IST ALL NAMES"
190 PRINT "(down)(rvs)Q(off)UIT(2down)"
200 INPUT "YOUR CHOICE  *(3left)";CH$
220 IF CH$="A" THEN GOSUB1000
230 IF CH$="F" THEN GOSUB2000
240 IF CH$="L" THEN GOSUB3000
250 IF CH$="Q" THEN PRINT"(clr)GOODBYE!!": END
260 GOTO150
270 :
1000 REM ADD A NAME
1010 INPUT "(clr)NAME  *(3left)";N$
1020 IF N$="*" THEN RETURN
1030 INPUT "AGE";A
1040 NN=NN+1: N$(NN)=N$: A(NN)=A: GOSUB1060: GOTO1010
1050 :
1060 REM CHECK FOR FIRST ENTRY
1070 IF NN=1 THEN K1(NN)=1: K2(NN)=1: RETURN
1080 :
1090 REM CHECK ORDER OF NAMES
1100 I=0
1110 I=I+1: IF I>NN THEN 1140
1120 IF N$(K1(I))>N$ THEN GOSUB1240: GOTO1170
1130 GOTO1110
1140 K1(NN)=NN
1150 :
1160 REM CHECK ORDER OF AGES
1170 I=0
1180 I=I+1: IF I>NN THEN 1210
1190 IF A(K2(I))<A THEN GOSUB1310: GOTO1220
1200 GOTO1180
1210 K2(NN)=NN
1220 RETURN
1230 :
1240 REM REARRANGE NAME KEY ARRAY
1250 FOR J=NN TO I+1 STEP -1
1260 : K1(J)=K1(J-1)
1270 NEXT J
1280 K1(I)=NN
1290 RETURN
1300 :
1310 REM REARRANGE AGE KEY ARRAY
1320 FOR J=NN TO I+1 STEP -1
1330 : K2(J)=K2(J-1)
1340 NEXT J
1350 K2(I)=NN
1360 RETURN
1370 :
2000 REM FIND A NAME
2010 IF NN=0 THEN PRINT"(clr)NO NAMES IN LIST!":GOTO3140
2020 INPUT"(clr)NAME TO FIND  *(3left)";N$
2030 IF N$="*" THEN RETURN
2040 LP=1:HP=NN
```

```
2050 SR=INT((LP+HP)/2+.5)
2060 PRINTSR,LP,HP
2070 IF N$=N$(K1(SR)) THEN PRINT N$,A(K1(SR)):GOTO2130
2080 IF LP >= HP THEN2120
2090 IF N$<N$(K1(SR)) THEN HP=SR-1
2100 IF N$>N$(K1(SR)) THEN LP=SR+1
2110 GOTO2050
2120 PRINT "(down)(rvs)"N$"(off) IS NOT FOUND(2down)"
2130 GOSUB3140: GOTO2020
2140 :
3000 REM LIST ALL NAMES
3010 IF NN=0 THEN PRINT"(clr)NO NAMES IN LIST!":GOTO3140
3020 PRINT "(clr)THE LISTS ARE(2down)"
3030 PRINT "BY NAME             BY AGE"
3040 PRINT "-------             ------"
3050 FOR I=1 TO NN
3060 : PRINTLEFT$(N$(K1(I))+"              ",12);
3070 : IF A(K1(I))<100 THEN PRINT" ";
3080 : IF A(K1(I))<10 THEN PRINT" ";
3090 : PRINT A(K1(I))"   "LEFT$(N$(K2(I))+"               ",12);
3100 : IF A(K2(I))<100 THEN PRINT" ";
3110 : IF A(K2(I))<10 THEN PRINT" ";
3120 : PRINT A(K2(I))
3130 NEXT I
3140 PRINT "(3down)      HIT (rvs)SPACE(off) TO CONTINUE"
3150 GET SP$: IF SP$<>" " THEN 3150
3160 RETURN
```

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Feature Article:

TERMINAL COMMUNICATIONS

Two Computers are Better Than One

by G. R. Boynton

This story comes in two parts. First, it describes a system of CBM 8032's. Second, it tells how we harnessed two computers to accomplish tasks that neither could accomplish well independently. A hypothetical application closes the article.

In 1979-80 the Department of Political Science at the University of Iowa decided it could work more effectively if everyone in the department had a micro. That involves 30 people: twenty faculty members, five secretaries, and a professional staff of five in the Laboratory for Political Research. The Laboratory had been helping department faculty use University computers in teaching and research for years; about fifteen people were active users. The other fifteen, including all the secretaries, were new to computing. At that time, the University's Weeg Computing Center was moving rapidly toward computer access by terminal, with more than 350 terminals on campus; subsequently raised to almost 1,000. The day of the key punch was past.

Something had to be done, but it took a considerable act of faith to choose micro computers. The popular micro computers, such as the Apple, the PET, and the TRS 80, were in their infancy, less than two years old. It was an even greater leap of faith for those in the department who had never used computers. No one offered a blank check, and no one could, in good conscience, guarantee that everyone would be happier with the new arrangement than they had been with the old. It meant giving up a secretarial line and scrounging money for the required 37 micro computers from a variety of sources. It took a year to find the money and get permission from all the groups that had to approve.

There were three objectives in computerizing the department. One was easy access to a terminal for everyone. The University provides a host of powerful computers, accessed by terminals, which are an integral part of the teaching and research of half the faculty of the department. The micro computers had to be as good as the University's terminals, which meant they had to send and receive information at a speed of 2400 baud.

The second objective was improved word processing. The work of a faculty is words. Teaching involves writing. Research involves writing. Even the simplest administrative work requires writing. With our active faculty, the secretaries were always backlogged. The situation cried out for improvement.

The third objective was electronic communication. We wanted to get rid of the hot ditto machine cranking out 20 pieces of paper per departmental memo. In addition, many of my colleagues colloborate in research and writing. Co-authors needed to exchange files, rather than paper.

The design of the system was constrained in several ways. We could not afford 37 disk drives. Because each micro computer had to access the University computers, we had to invest heavily in communication lines and modems. Therefore, a local network was not feasible. Instead, we used one of the campus mini-computers, a Prime 750, as the disk drive and communication switching device for all the micro computers in the department.

The most important design consideration was that the software had to be as simple to learn as possible. Once we decided that part of the software system would reside on the Prime, we concentrated on making it automatic. We did not want department members to be reminded two computers were "in the act". For instance, it take four code words to get to the software on the Prime, but we did not want users to have to memorize four codes.

Bids were requested from firms selling popular micro computers. The low bid featured CBM 8032s (it was very hard to beat the Commodore educational discount). Since none of the brands included the RS 232C interface the University uses, and nothing we found at the time would operate reliably at 2400 baud, we had the engineering shop at the University make an RS 232C interface.

The software on the Commodore computers had to emulate a terminal, provide text editing, and send and receive PET BASIC programs and ASCII files to the Prime in "colloboration" with the text editor. In addition, we didn't want to have to "shut down" the PET BASIC text editor to emulate a terminal. The text editor and the communication handling/terminal emulation program had to run without interfering with each other. That meant one had to be in machine language at the top of memory, where it would not interfere with PET BASIC.

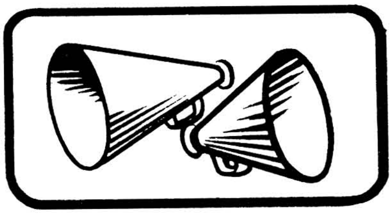
The software on the Prime 750 needed to store files on the Prime disk drive, and send and receive files to be stored there. It had to mask many operations of the Prime operating system so users would not need to wander off to Primos to get or delete files. It also had to handle communication between users, and print files on the NEC Spinwriter in the departmental office.

It was not easy, but our goals were finally achieved. Terminal emulation is straight-forward. You type SYS 40688, which gets you to a machine language program on EPROM that turns the 8032 into a terminal. The user may choose to emulate an ADDS Regent 100, an ADM 31, or a TeleVideo 950. Other than that, the 8032 looks to both users and the mini very much like a standard terminal.

The word processing and communication system are concentrated in a text editor on the CBM and a program on the Prime. The user begins by typing SYS 40688, flipping a switch on a Gandalf modem, and pressing two keys. This signs on to the Prime and accesses our software there. Each user has a customized EPROM with codes for that particular user. After logging on, the user sees a "menu" of options. From a single "first page", it is possible to load a BASIC program on the CBM, save a BASIC program on the Prime, send or receive mail, transfer a file, check files, send a file to be printed, or go into either of two operating systems on the Prime. After every operation, except going off to a Prime operating system, the user is returned to this list of options. The program on the Prime also translates persons' names to their Prime code names; (the program knows that mail or a file sent to Boynton is really blabyn...)

The text editor is a modified version of PAPER MATE. Users wait about a minute while the program is transmitted from the Prime, then see a first page from which they may choose to write a file, load a file, append a file, save a file, save a subset of a file, or send a file to be printed. Users hardly knows two computers are involved. To save a file, just type "s"; the program asks for the file name to be used, checks for "illegal" characters, and tells the user to flip the switch on the modem and press the SPACE bar. Within a few seconds the file re-appears on the screen, after being saved on the Prime. Logging on, sending, receiving, saving, and logging off the Prime are handled automatically.

All functions are concentrated on two pages. The text editor is as close to typing on a typewriter (with very nice additional correction features) as possible. Transmission of files is as automatic as we could make it. Except for one or two lumps, it is as smooth a system of word processing and communication as we can imagine. AND it works. Every document sent to be printed is printed that day, with only one secretary devoting about two-thirds time to the task. All my colleagues find the ability to easily revise work a great boon, and we certainly exchange lots of electronic mail and files.



Part Two: The Machine Language Program

Micro users have previously done very little to put two computers to work with each other. Most file exchange (smart terminal) programs I have seen fit the terminal-to-computer framework that has dominated the last fifteen years of computing. First, the user turns the computer into a terminal, signs on to the host computer, and starts its editor. Then the user exits terminal mode, goes back to a program running on the micro, and starts sending text to the host editor. To the host, it looks as though a very fast typist is at the terminal keyboard. After the information is sent, the user returns to terminal mode, saves the file, leaves the editor, and logs off the host. Receiving a file occurs about the same way. The host computer "lists" a file to the screen, and the information is stored in the RAM of the micro. From RAM it is sent to a disk or printer. This works, but the user must know how to run the operating system, editor and other facets of both computers, and it does not effectively harness the power of the two computers.

Our strategy is very different, as illustrated by the procedure that sends an ASCII file to the Prime. Three programs must collaborate: a PET BASIC program (in most cases, the text editor), the machine language program stored on EPROM in the 8032, and a program running on the Prime. The machine language program controls communication between PET BASIC and the Prime, and also translates PETSCII to ASCII as it sends and receives files.

To do this, the BASIC program first builds a string of information needed by both the machine language program and the Prime. The first character in the string specifies how many operations to do in this exchange (one operation per file sent). The rest of the string is blocks, one per operation.

The first character in each block tells the Prime whether to send or receive. The second character gives routine information to the Prime. Together, the two characters make a code with a range from 00 to 99, used to signal any allowable operation.

Characters 3 and 4 of the block name the information to be sent to the Prime, usually the name of a string array.

Characters 5 and 6 specify the first element to send from the array, while characters 7 and 8 specify the last element to send. This permits BASIC to send all or part of the array to the other computer.

Characters 9 through 40 specify a file name to be used on the other computer, which can vary in length from 1 to 31 characters.

The final character in the block, an ASCII 255, signals the end of the block. Additional blocks use the same format.

Finally, the BASIC program pokes the first two characters of the name of this "information" string into locations 1 and 2, where the machine language program will look for them, and exits to the machine language program.

The machine language program saves the first page of PET memory (so it can restore BASIC after communicating), sends this string to the Prime, and waits for a signal to start sending data. Once the Prime has signaled it is ready, the machine language program sends the specified strings or arrays.

This design is very flexibile. One or more of up to 99 different operations may be perforemed in each transaction. Strings, string arrays, or subsets may be sent. File names can be specified for each string or array sent.

We have never used one other design feature in the program, because the Gandalf modem cannot be controlled by software. The machine language program can be queried for its status by the other computer, and will indicate that it is ready to receive or it is ready to send. If the other computer could check this status variable on a regular basis, one could automate the exchange process. When the other computer found a CBM in a "ready to send" status, the other computer could initiate the exchange. When the other computer found the CBM in a "ready to receive" status, it could send a message to the CBM.

This design permits three programs on two different computers to work together to exchange information. We then applied it to word processing. But that is only one use. Potential uses are only limited by our imagination. Consider this hypothetical application:

A large warehouse has a number of shipping and receiving points. Each point must track its own inventory and shipping schedule. But the central office needs overall information. An 8032 with a disk and suitable software at each point would take care of local needs. It would not, however, keep the central office up to date on inventory, nor receive orders.

What is needed is a way to exchange information between the central office computer, and the 8032's. With software similar to what we are using, information exchange could be automatic. As products were received or shipped, information would be recorded on the CBMs. As the central computer checked the status of the CBMs from time to time, it would upload the information. This could even be designed so that the "ready to send" status was only on when available memory on the CBM reached a specified minimum. The program on the CBM could not only send the information on shipping and receiving, but also a verification message with number of entries and time and date of transmittal of information. Orders to be processed could also be sent automatically to the CBM by checking for "ready to receive" status. Using the "window" feature of the CBM screen display, the operator of the local computer could be informed a message had been received. It then would be easy to build electronic mail into the network. Three computer programs working together could automate inventory control, order processing, and electronic mail.

The point is -- it is possible to write programs for CBM that interact effectively with other computers. But you need a program to serve as communication handler and to take care of some idiosyncracies of Commodore machines. That is what we have tried to do--make it easy to break out of the computer-to-terminal framework which we have known and would like to forget.

Feature Article:
VIC 20 SUPPLIERS

VIC 20 Product Suppliers

by Colin Thompson

The following list is by VIC owner and M/P subscriber, Colin Thompson of BASF, who has made it his business to keep track of the names and addresses of all the companies selling products for VIC computers. He's done a good job--his list isn't much shorter than our own, and he makes weekly updates of his available to anyone who sends him a stamped self-addressed envelope at the following address:

Mr. Colin F. Thompson
BASF Systems Corporation
1307 Colorado Avenue
Santa Monica, CA 90404

The list was produced using TOTL.LABEL from Totl Software, on an Epson printer, using the densest setting and 8 lines per inch. We have printed directly from Colin's original, without reduction, and apologize to anyone with weak eyes. To use the list, note that it is alphabetical by keyword, within categories. Thus to find, for example, Totl Software, first flip through to the software section, and then read down to the t's. The **sections are: software, hardware, periodicals, distributers, mail order houses, and others.** Any company that feels neglected may contact Colin to be added to the list.-ED

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h: cen		Century Micro	7881 La Riviera Dr. Suite 131	Sacramento, CA 95826
h: dig	503 295 5890	Digital Interface Systems	Box 8715	Portland, OR 97207
h: dyn	214 542 6012	Dynamic Technologies	Box 351	Allen, TX 75002
h: dyt	813 384 1539	Dytek	Box 241	Pinellas Park, FL 33565
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h: exa	800 538 8559	Exatron	181 Commercial St.	Sunnyvale, CA 94086
h: fer	317 297 0842	Ferris Associates	Box 68421	Indianapolis, IN 46268
h: glo		Glouster Computer Bus Co.	6 Brooks Road	Glouster, MA 01930
h: int	714 641 0181	Integrated Controls	1240-L Logan Avenue	Costa Mesa, CA 92626
h: mic		Micro-Star	5633 Emigration Canyon	Salt Lake City, UT 84108
h: mis	303 475 0083	Missing Link Products	Box 6460	Colorado Springs, CO 80934
h: oxf		Oxford Computer Systems	Hensington Rd. Woodstock	Oxford OX7 1JR ENGLAND
h: par	415 651 3160	Parsec Research	Drawer 1766-P	Fremont, CA 94538
h: per	312 961 2347	Personal Peripheral Products	Box 3423	Aurora, IL 60505
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h: ram		RAM/RBC Systems	Box 351	Malden, MA 02148
h: rvr		RVR Systems	Box 265	Dewitt, NY 13214
h: sl (send SASE)	313 846 6666	Slagh System Services	Box 53	Dearborn, MI 48121
h: sun		Sunshine Peripherals	1229 East 28th Street	Brooklyn, NY 11210
h: vip	714 527 8264	VIP Enterprise	919 N. Cambria St.	Anaheim, CA 92801
hm: mi	214 484 7836	Micro-Systems Development	11105 Shady Trail Suite 103	Dallas, TX 75229
hs: apr	805 484 3604	Apropos Technology	350 N. Lantana Suite 821	Camarillo, CA 93010
hs: car	316 685 9536	Cardco	3135 Bayberry	Wichita, KS 67226
hs: com	609 795 9480	Computer Marketing Services	300 W. Marlton Pike Suite 26	Cherry Hill, NJ 08002
hs: cos	617 961 5700	Computer Software Associates	50 Teed Drive	Randolph, MA 02368
hs: cow	602 249 0611	Computer Works	2028 West Camelback	Phoenix, AZ 85015
hs: dat	714 770 2366	Data 20 Corp.	20311 Moulton Parkway Ste. B10	Laguna Hills, CA 92652
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o: cie	714 757 4849	Computer Info Exchange	Box 158	San Luis Rey, CA 92068
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o: mac	619 452 5151	Macro Dynamics	8950 Villa La Jolla Dr. #1200	La Jolla, CA 92037
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o: nva		National Vic Association	9 Crabapple Lane	Nanuet, NY 10954
o: pmp		PM Products	4455 Torrance Blvd. #177	Torrance, CA 90503
o: sex	805 498 6984	VIC 20 Software Exchange	763 S. Boxthorn	Newbury Park, CA 91320
o: sof	615 457 5068	Software To Go	Rt. 3 Box 309 A 52	Clinton, TN 37716
o: sos	916 677 8120	Electrosmith	Box 1430	Shingle Springs, CA 95682
o: tes	213 247 6486	Torrey Engberg Smith Co.	Box 1075	Glendale, CA 91209
o: tor		Toronto PET Users Club	381 Laurence Ave. West	Toronto, ONT CAN M5M 1B9
p: coa	800 426 1830	Commander Magazine	P.O. Box 98827	Tacoma, WA 98498
p: cog	800 334 0868	The Commodore Gazette	Box 5406	Greensboro, NC 27403
p: com	800 334 0868	Compute!	Box 5406	Greensboro, NC 27403
p: coo	215 687 9750	Commodore-Microcomp. Magazine	487 Devon Park Drive	Wayne, PA 19087
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p: loa	913 762 4730	Load 20 Magazine	550 Grant Ave.	Junction City, KS 66441
p: mid	217 864 5320	Midnite Software Gazette	635 Maple	Mt. Zion, IL 62549
p: pro	919 489 2198	Programmer's Institute	Box 3191	Chapel Hill, NC 27514
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m: abc	215 822 7727	AB Computers	252 Bethlehem Pike	Colmar, PA 18915
m: all		Allegiance Enterprises	868 96th Ave. N.E.	Blaine, MN 55434

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m: coe	313 528 1554	Computer Express	Box 569	Troy, MI 48099
m: com		Computer Mail Order	EAST (800) 233-8950	WEST (800) 648-3311
m: coo	800 634 6766	Computer Outlet	1095 East Twain	Las Vegas, NV 89109
m: cos		Computer Specialties	1253 Broadway	El Cajon, CA 92021
m: cot	800 558 8803	Comstar	Box 1730	Goleta, CA 93116
m: cou	316 684 4660	Compu Sense	812 S. Lightner	Wichita, KS 67218
m: cow	516 621 1362	Compuway, Inc.	24 Lumber Road	Roslyn, NY 11576
m: cpm (cat. $1.25)		CPM	Box 19137	Charlotte, NC 28219
m: dis	414 231 1696	Discount Software House	Box 93	Winnebago, WI 54985
m: eas	919 924 2889	Eastern House	3239 Linda Drive	Winston Salem, NC 27106
m: eav		EAV Software	17 Marble Avenue	Pleasantville, NY 10570
m: ekt	415 489 1532	Ektype Office Systems	1655 Whipple Road	Hayward, CA 94544
m: emb	212 961 9806	Embassy Computer Products	Box 88	Little Neck, NY 11363
m: hai	800 645 9187	Harrison Computer Center	2263 Broadhollow Road	E. Farmingdale, NY 11735
m: har	800 221 8927	Harmony Video & Electronics	2357 Coney Island Ave.	Brooklyn, NY 11223
m: jmc		JMC	1025 Industrial Drive	Bensonville, IL 60106-1297
m: lyc	800 233 8760	Lyco Computer	Box 10	Cogan Station, PA 17728
m: mai	800 752 1341	Mail Comp	9434 Chesapeake Drive	San Diego, CA 92123
m: mar	800 331 9131	Marco Polo Co.	4681 S. 83rd E. Ave.	Tulsa, OK 74145
m: mim	800 841 0860	Micro Management Systems, Inc.	2803 Thomasville Road	Cairo, GA 31728
m: mis		Microsignal Publications	Box 22	Millwood, NY 10546
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m: oly	800 421 8045	Olympic Sales	216 South Oxford Avenue	Los Angeles, CA 90004
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m: prg	301 488 7719	Programs International	Moravia Center Industrial Park	Baltimore, MD 21206
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m: pro	312 382 5244	Protecto Enterprizes	Box 550	Barrington, IL 60010
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Feature Article:
VIC 20 HARDWARE

Expanding Commodore 8K Memory Board To 16K

reprinted from Hardcopy
by Peter J. Farrow

8K TO 16K EXPANSION

The Commodore 8K memory board can be upgraded to 16K if you have a steady hand, a small soldering iron, and a desire for more memory.

First, we need a standard Commodore 8K plug-in board. This already has the room for the four additional static memory chips required to do the job. In addition, the following materials are required: four chips type 6116 (or equivalent), a small low-wattage soldering iron, "electronic" type solder, some aluminum foil, and a magnifying glass. The 6116 chips are available for around $4 each, [for a total] cost of...less than $20! DO NOT remove the 6116 chips from the foam or foil packing until ready to install them. The foam or foil is for protection from static electricity. A well lighted, clean slightly humid work area is a must. The humidity will reduce the chances of damage from static-electricity [to] the new 6116 chips, as well as those already on the Commodore board...

First, remove the Commodore memory board from the cartridge. Follow the instructions for changing the "Block Select" switch that came with the cartridge. Once the printed-circuit board is removed, carefully inspect it to note the placement of the chips that are already installed. The four large chips are the 6116's. Each chip has a small reference "indent" on the top edge. The pin to the left of this indent is pin 1, and a small figure 1 should be visible on the printed circuit below.

Wrap the end of the board that has the chips already installed with some aluminum foil, leaving the chip nearest the center uncovered. Press the foil over the pins of the chips on the solder side so that they are all connected [to]...minimize the chances of damage from "static".

Take a new chip and bend the pins towards each other to form two rows 9/16 inch apart. Holding the board in one hand,...place [the 6116] on the component side of the board. Check to make sure that the "indent" is facing the same way as the chips already on the board before soldering the chip in position. Chips U6, U7, and U8 are installed facing the same way as U2, U3, and U4. U9 faces the same way as U1. Use a minimum of solder and heat so as not to damage the board or chip. DO NOT push the pins of the new chip through the board. Any attempt to do this could end up pulling the fragile "traces" from the board.

After installing the four new chips, they should be carefully inspected for shorts or excess solder [with a] magnifying glass.... If all looks good, remove the aluminum foil and install the board in the VIC for testing. When the VIC is turned back on, it should have 19967 BYTES FREE. If not..., switch the VIC off immediately and remove memory for inspection. An excess of solder between pins is a disaster! Do not use a meter or other checker to look for shorts as this is in itself could cause problems.

Assuming everything looks good, [you can modify] one further area.... As the board comes, the new memory will automatically be in Block 2. If you need other Block selections, follow the printed trace on pin 11. This is similar to those on pins 10 and 12, except that instead of finishing in a small "half moon" pad, it has a small jumper that goes to U5. This jumper must be carefully cut and a small "Dip Switch" mounted on the printed circuit (available...from Radio Shack for about $1.50). To permit the printed circuit to be reinstalled in the plastic case,...mount the dip switch with its leads penetrating the board.

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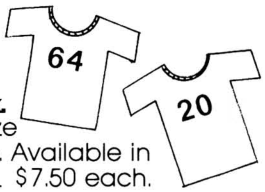

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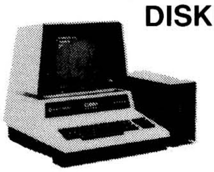

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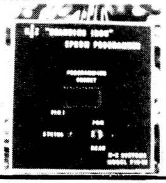
Programs 2716 and 2532 EPROMs. Includes hardware and software. PET = $75.00 – ATARI (includes sophisticated machine language monitor) = $119.95



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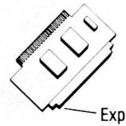

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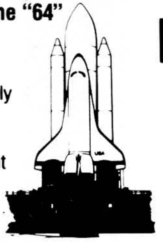

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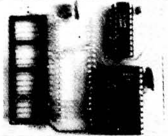

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TRAP 65 is a hardware device that plugs into your 6502's socket. Prevents execution of unimplemented opcodes and provides capability to extend the machines' instruction set. For PET/APPLE/SYM. Reduced from $149.95 to $69.95

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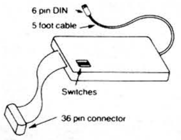

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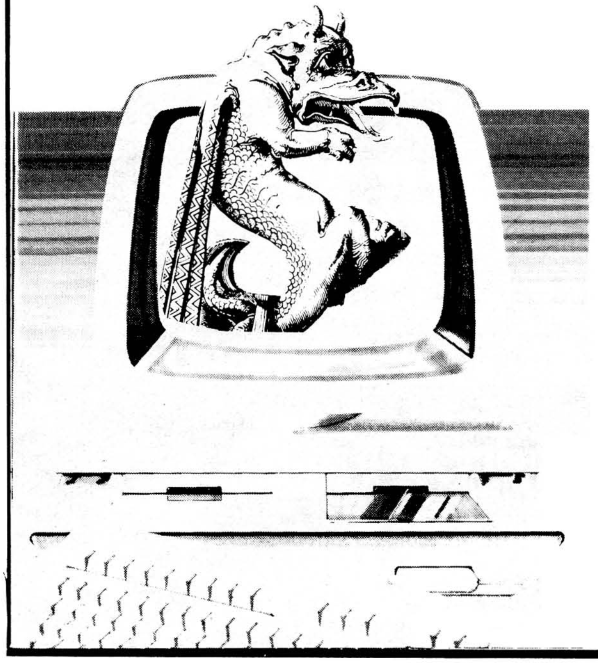
YOUR PET NOT AS FRIENDLY AS IT USED TO BE?



The Transactor

The Tech/News Journal For Commodore Computers Vol. 4

Maybe the colour seems to have gone out of your Vic. It's probably not something your dealer can do anything about. Your problem is simple. You've got a troll living in your computer.

Yes, we used to think that it was silly stuff like lack of documentation or poor availability of software that turned people off their systems but modern technological understanding has banished such odd notions. We now realize that after you've had your computer for a little while the mystic spirits of the nether world crawl into it between the keys on the keyboard and grow tiny trolls under the chips. As they mature they send off powerful vibrations that subconsciously make your computer resemble a plate of freeze dried asparagus. No wonder you've lost interest in it.

Most systems, when so afflicted, are doomed. However, recently a new publication has emerged for the owners of PETs, CBMs, VICs, Commodore 64's and related systems which especially caters to owners of these machines who suspect troll intervention. Called the Transactor, it is crammed full of amazingly useful software which not only makes your system eminently more useful to you but also sets up an internal atmosphere which is not condusive to troll growth. After a few issues of the Transactor your Commodore computer will be troll free and doing things you'd have never thought possible.

A year's subscription (6 issues) is just $15.00.

The Transactor, Subscriptions Dept.
500 Steeles Avenue
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STRICTLY COMMODORE Magazine

Programs for VIC-20, PET, and CBM computers

Each bi-monthly issue features 5 to 8 fully listed programs ranging from games and adventures to educational programs. The wealth of programs offered in each issue gives you exciting things to do with your computer...at a fraction of the cost of buying the same programs over the counter. Furthermore, STRICTLY COMMODORE contains descriptions, instructions, and notes on the programming techniques used in all programs. The current issue contains the following programs:

Mission ABM: As Civil Defense Commander you must defend 5 cities against the enemy's oncoming missiles.
Quarterback: You control a professional football team's offense versus the awesome computer-controlled defense.
Commodore-Man: Move through the maze and eat all the dots and monsters that you can.
Tic-Tac-Toe: Play the standard grid game on the computer.
Lemonade Stand: An educational and business simulation for all ages.

The next issue will contain the following programs:

Alien Attack: Maneuver a starfighter jet and destroy all the alien crafts before they get you.
Airport Tower: As an air traffic controller you must direct all airplanes to their proper destinations without any crashes.
Artillery: A two-player strategy game where you attempt to destroy your opponent's gun emplacement before he destroys yours.
Asteroid Field: Maneuver a space shuttle through a hazardous asteroid field to reach your mother ship.
Bomber Drop: Catch the ever-increasing number of falling bombs before they hit the ground or face total annihilation.
Saucer Shootout: A two-player arcade style game that also teaches you math.

STRICTLY COMMODORE also includes programming hints and tips, a new products section, detailed reviews of major products, and other factual material of interest to Commodore owners.

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SUPER 64 is the only magazine devoted exclusively to Commodore-64 computer owners. Each issue offers you 6 to 8 exciting programs, programming hints and tips, new products information and much more. Get the most out of your new Commodore-64 computer with SUPER 64. Published quarterly. Only $14 (U.S.) for a year of computing excitement.

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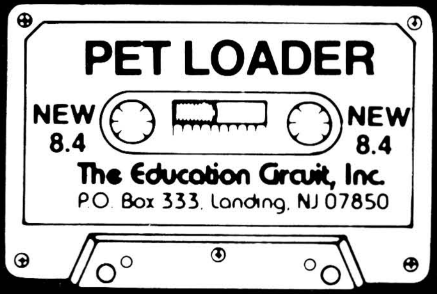
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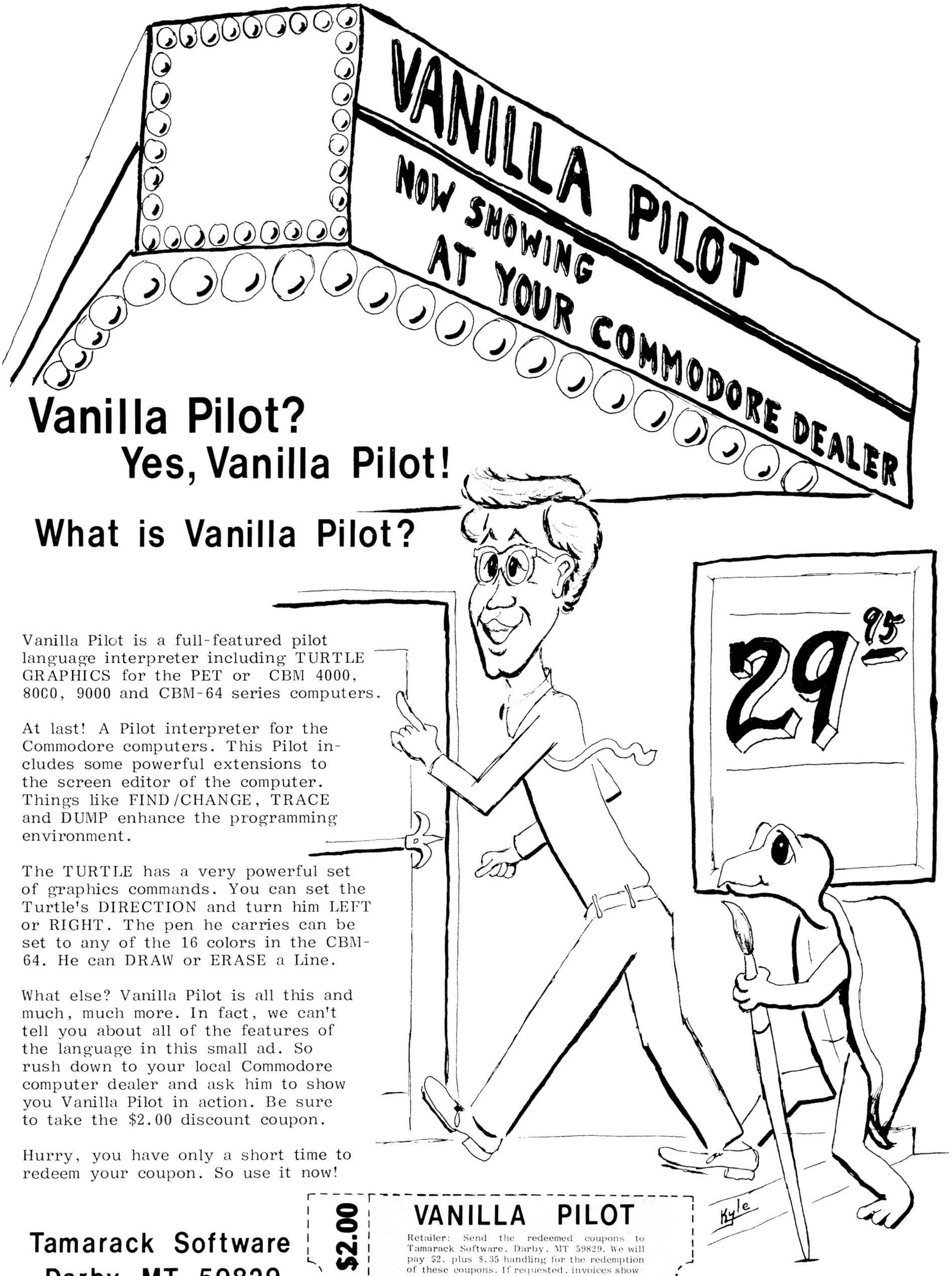

Vanilla Pilot?

Yes, Vanilla Pilot!

What is Vanilla Pilot?

Vanilla Pilot is a full-featured pilot language interpreter including TURTLE GRAPHICS for the PET or CBM 4000, 8000, 9000 and CBM-64 series computers.

At last! A Pilot interpreter for the Commodore computers. This Pilot includes some powerful extensions to the screen editor of the computer. Things like FIND/CHANGE, TRACE and DUMP enhance the programming environment.

The TURTLE has a very powerful set of graphics commands. You can set the Turtle's DIRECTION and turn him LEFT or RIGHT. The pen he carries can be set to any of the 16 colors in the CBM-64. He can DRAW or ERASE a Line.

What else? Vanilla Pilot is all this and much, much more. In fact, we can't tell you about all of the features of the language in this small ad. So rush down to your local Commodore computer dealer and ask him to show you Vanilla Pilot in action. Be sure to take the $2.00 discount coupon.

Hurry, you have only a short time to redeem your coupon. So use it now!

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This feature allows horizontal scrolling on a wider text area with both 40 and 80 column displays. Now you can easily create and edit *wide* worksheets. GREAT WHEN WORKING WITH COLUMNS OF NUMBERS.

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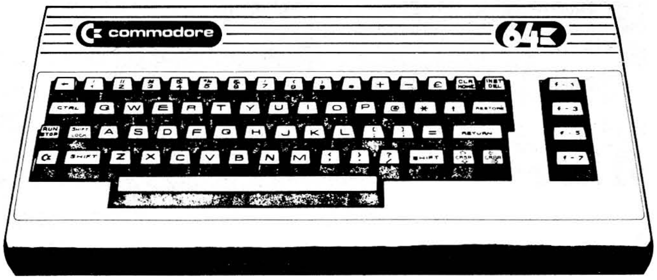

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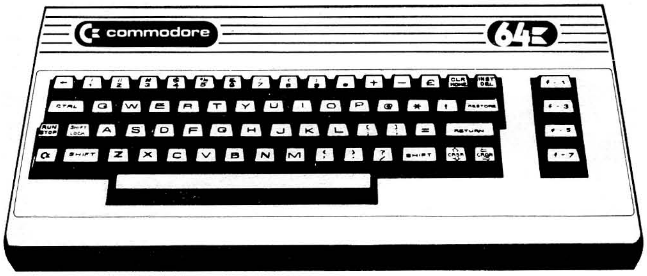

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COMING UP

Several products have recently arrived for review. They will be reviewed next time. Meanwhile, they do exist, and may be ordered. Here is the list:

NEW PRODUCTS

MAG's "Magis Plus" accounting package
Galt's "Disk Library"
RTC's "RTC-4" word processor
Alan Ackerman's "Time Accountant"
French Silk's "Games Development Pac"
Precision Software's "SuperSpell"
Midwest Software's "Datalog"
Rediker Software's "Attendance Plus"
DES's "Mailing List" for the 64
    "Checkbook" for the 64
    "Gamblers' Pack" for the 64
    "PAL" VIC workbook
    "Shrooms" VIC game
    "Star Defender" VIC game
    "Snackin" VIC game
    "Chopper Rescue" VIC game
    "Laser Command" VIC game
    "Adventure Manor" VIC game
Add.-Wesley's Courseware in the Classroom
Comm*Data's "Pakacuda" for VIC
    "Escape from MCP" 64 game
    "Ape Craze" 64 game

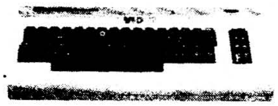
NEW VERSIONS

CFI's "Asert"
EHS's "MAE" version 3.0
"Master" without the runtime dongle!
RTC's enhancement for
    BPI's "General Accounting"
RTC's "Scratchpad"
"Spellmaster"
"The Manager", version 1.84

PRODUCTS BEING SENT

"Calc Result"
"MAE" for the 64
"Paperclip" for the 64

And more... Should be a good issue.
Should be a good issue.
Don't miss it!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COMAL checks syntax AS THE CODE IS ENTERED, so you NEVER have to find a syntax error when your program is run!

Products available:

THE INTRODUCTORY COMAL PACK;
THE COMAL HANDBOOK by Len Lindsay and COMAL on disk:
A complete description of all COMAL keywords and how to make the simple switch from BASIC to COMAL. The disk runs COMAL on all PET/CBM 4032 to 8096 computers with 4.0 BASIC, in 4040 or 8050 disk format and includes 137 example programs. $29.95.

STRUCTURED PROGRAMMING WITH COMAL by Roy Atherton:
An excellent introduction to programming and problem anaylsis with COMAL. $24.95.

INSTRUTEK ROM BOARD: Plugs into any upgrade or 4.0 PET/CBM providing COMAL in firmware. Includes a free copy of THE COMAL HANDBOOK. $350.00.

** NEW **
COMAL version 1.02 for Z-RAM users! 4040 or 8050 disk. $14.95.

BEGINNING COMAL by Borge Christensen:
Written by the father of COMAL, this provides a structured introduction to programming in COMAL. $14.95.

COMAL GRAPHICS Board: Plugs into the Instrutek ROM Board and provides bit-mapped, high resolution graphics (512 x 256 pixels) under COMAL control to PET/CBM computers $350.00

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Amplify, Inc.	2325 Macbride, Iowa City IA 52240
Batteries Included	71 McCaul St., Toronto ONT M5T 2X1 CANADA
BPI	3423 Guadalupe, Austin TX 78705
Briley Software	P.O. Box 2913, Livermore CA 94550
Brooks/Cole	Monterey CA
Cardco	313 Mathewsonn, Wichita KS 67214
CFI Computer Solutions	201 W. 92nd. St. New York NY 10025
Chaya and Santora	Mt. St. Mary College, Newburg NY
CMC	36 Del Mar Dr., Brookfield CT 06804
Collegiate Microcomputer	Rose-Hulman Inst., Terre Haute IN 47803
Comal Interest Group	505 Conklin Pl., Madison WI 53703
Comm*Data	P.O. Box 325, Milford MI 48042
Commodore	The Meadows, 487 Devon Park Road, Devon PA 19087
Compuserve	5000 Arlington Cenntre Blvd., P. O. Box 20212, Columbus OH 43220
Computer Connnection	1206 W. Robb Av., Lima OH 45801
Creative Equipment	6864 W. Flagler St., Miami FL 33144
Creative Software	P.O. Box 4030, Mountain View CA 94040
Cyberia, Inc.	2330 Lincoln Way, Ames IA 50010
Digital Interace Systems Co.	Attn: Daryl Millard, POB 8715, Portland OR 97207
Education Circuit, Inc.	P.O. Box 333, Landing NJ 07850
Etcetera of CSC Corporation	Apex NC
Flynn's Business Services	P.O. Box 903, Mountain View CA 94042
FSS	P.O. Box 8403, Austin TX 78712
Galt's Educational Computer Consultants	Orange CA 92669
Hayden Book Co.	50 Essex Street, Rochell Park NJ 07662
Image Software	3678 Nicole Las Vegas NV 89120
Intelligent Software	P.O. Box 3745, San Rafael CA 94912
Richard D. Irwin, Inc.	Homewood IL 60430
Jini Micro Systems	P.O. Box 274, Riverdale NY 10463
Journal/20	Box 1149, Van Alstyne TX 75095
Master 3 Corporation	c/o B. Greene 210 Fifth Av., New York NY 10010
Mercury Micro, Inc.	Dept. D, Cherry Field Rd., Drayden MD 20630
Micro-Pace Computers	1510 N. Neil, Champaign IL 61820
Microtechnic Solutions	P. O. Box 2940, New Haven, Fairfax VA 22032
Midwest Software	Box 214, Farmington MI 48024
Osborne/McGraw-Hill	2600 Tenth St., Berkeley CA 94710
Precision Software	4 Park Terr., Worcester Pk., Surrey KT4 7JZ ENGLAND
Prentice/Hall, Inc.	Englewood Cliffs NJ 07632
PTI	Salt Lake City UT
Professional Software	51 Fremont St., Needham MA 02194
Richvale Telecommunications	10610 Bayview, Richmond Hill ONT L4C 3N8 CANADA
Software Clearing House	P.O. Box 68756, Indianapolis IN 46268
Software Intl.	560 N. Mountain Av., Suite L, Upland CA 91786
Spellmaster Systems Software	6219 Thirteenth Av. S., Gulfport FL 33707
Strictly Commodore	Box 7428, Station E, Calgary ALB T3C 3M2 CANADA
Tamarack Software	Darby MT 59829
TNW Corporation	3351 Hancock St., San Diego CA 92110
The Transactor	500 Steeles Av., Milton ONT L9T 3P7 CANADA
West Publishing	P. O. Box 3526, 50 W. Kellogg Blvd., St. Paul MN 55165
John Wiley	605 3rd Av., New York, NY 10158

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